



**AGENDA
FOR
203rd OCC MEETING**

**Date: 19.05.2023
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700033**

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 203RD OCC MEETING TO BE HELD ON 19.05.2023 (FRIDAY) AT 10:30 HRS

PART – A

ITEM NO. A.1: Confirmation of Minutes of 202nd OCC Meeting held on 20th April 2023 through MS Teams online platform.

The minutes of 202nd Operation Coordination sub-Committee meeting held on 20.04.2023 was circulated vide letter dated 25.04.2023.

Members may confirm the minutes of 202nd OCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Frequency Response Performance measuring framework and data sharing guideline: ERLDC.

Primary frequency response is the 2nd layer of defence against the sudden frequency excursion in the grid. Continuous monitoring of FRC of generators and states is being already done by ERLDC. Eastern region can manage to maintain good FRC characteristic with the support of the all the generating stations of ER. Also, Eastern region is the 1st in the country to finish the PFR testing of all the identified ISGS and IPP units. Going beyond, many state generating station of WB, DVC and Odisha have already taken up PFR testing which is again a pioneer step in the country.

Control area wise FRC calculation is a well stabilised process and is being followed from last 9 years. However, developing a unit wise sustainable Frequency Response performance measuring framework will further enable everyone to assess the performance and improve upon it. For accessing the performance ERLDC has developed a framework based on both quantum and duration. The newly developed framework is in line with provision of Draft IEGC 2022, where regulation specified that performance of all obligated entities must be monitored and if performance fall below certain level, action must be taken. As per the new framework, one ranking method for individual generators has been developed. The detail of the Ranking method is attached in the **Annexure B.1.**

1st Position			
BRBCL unit-1			
Submitted by Plant			
Response Index	73.73		
Sustainability Index	89.84		
Complex Performance index	79.10		
		2nd Position	
		Farakka unit-4	
		As per ERLDC SCADA data	
Response Index	58.29		
Sustainability Index	100.00		
Complex Performance index	72.19		
3rd Position			
Farakka unit-2			
As per ERLDC SCADA data			
Response Index	47.11		
Sustainability Index	98.32		
Complex Performance index	64.18		

Sample ranking of unit response for tripping of MB Power due to loss of evacuation path and resulted in generation loss of around 1105 MW at 09:16 Hrs. on 16-03-2023

All members are requested to review the ranking method and give feedback for improving the metrics.

ITEM NO. B.2: Need for review of system strengthening plan for meeting future enhanced load demand in West Bengal: ERLDC.

Considering the increase in demand in West Bengal and CESC area, a case for next year summer peak has been prepared where CESC demand has been projected at around 2750 MW and West

Bengal net demand at 12381 MW where yearly growth considered is at 10% and 7% respectively. Significant constraint has been observed in base case demand as well as after N-1 constraints in the system. In addition, Low voltage issue has also been observed in the south Bengal system. Below shared tables provide the base case as well N-1 contingency based system constraint in West Bengal along with low voltage nodes below 0.9 p.u. These provided constraints require detailed deliberation by WBSETCL and CESC.

There is a need for WBSETCL and CESC on the long-term planning for entire west Bengal transmission network.

Constraints of 400/220 KV ICT in base case	Constraints of 400/220 KV ICT in N-1 contingency
3x 315 MVA 400/220 KV JEERAT ICT (One ICT out of 4 x 315 MVA is under long outage)	2 x 315 MVA 400/220 KV KTPS ICT
2x315 MVA 400/220 KV BIDHANNAGAR ICT	3 x 315 MVA 400/220 KV KHARAGPUR ICT
2x315 MVA 400/220 KV GOKARNA ICT	
1x 315 MVA 400/220 KV SAGARDIGHI ICT	
3x315 MVA 400/220 KV NEW CHANDITALA ICT	

Constraints of 220 KV AC lines in base case	Constraints of 220 KV AC lines in N-1 contingency
220 KV KASBA - BARASAT B D/C	220 KV KLC BANTALA – SUBHASPG S/C
220 KV KASBA - EMSS D/C	220 KV HOWRAH - KTPS D/C
220 KV GOKORNO2 - REJINAGAR D/C	220 KV KASBA - SUBHASGRAM WB D/C
220 KV SUBHAS2 – LAKHIKANTAPUR D/C	220 KV SUBHASGRAM PG - SUBHASGRAM WB D/C
220 KV EMSS - PRINCEP ST S/C	220 KV SUBHASGRAM WB - LAKHIKANTAPUR WB D/C
220 KV BARASAT B – RAJARHAT D/C	220 KV JEERAT - DHARAMPUR ckt
	220 KV DOMJUR - NEWCHANDITALA D/C
	220 KV Bakreswar - SADAIPUR D/C
	220 KV SAGARDIGHI - NEW SAGARDIGHI D/C
	220 KV NEW COSSIPORE - PRINCEP ST S/C
	220 KV EMSS – NEW COSSIPORE D/C

Constraints of 220/132 ICTs in base case	Constraints of 220/132 ICTs in N-1 contingency
3 X 160 MVA 220/132 KV EMSS Kasba CESC ICT	1 X100MVA 220/132 KV SANTALDIH ICT
3 X 160 MVA 220/132 KV JEERAT ICT	4 X 150MVA 220/132 KV HOWRAH ICT

	2 X 160MVA 220/132 KV SADAIPUR ICT
	3 X 200MVA 220/132 KV BIDHANNAGAR ICT
	2 X 160 + 100MVA 220/132 KV DPL ICT
	4 X 160MVA 220/132 KV ARAMBAG ICT
	2 x 160MVA 220/132 KV DALKHOLA WB ICT
	3 x 160MVA 220/132 KV LAKHIKANTAPUR ICT
	3 x 160MVA 220/132 KV DOMJUR ICT
	2 x 160MVA 220/132 KV SUBHASGRAM ICT
	4 x 160MVA 220/132 KV GOKORNO ICT
	2 x 160MVA 220/132 KV BUDGE BUDGE ICT
	3 x 160MVA 220/132 KV NEW COSSIPORE ICT
	2 x 160MVA 220/132 KV EMSS ICT

Constraints of 132 KV AC Transmission lines in base case

132 KV HOWRAH - LILUAH Q/C
132 KV KASBA 1 - SONARPUR D/C
132 KV BISNUPUR – NEW BISNUPUR S/C
132 KV NEWTOWN - NEW TOWN AA1 S/C
132 KV N TOWN - TAP A1A3KLC S/C
132 KV TARATALA – CHAKMIR D/C
132 KV CHAKMIR - BUDGE BUDGE D/C
132 KV CHAKMIR - MAJERHAT S/C
132 KV MAJERHAT - JADAVPUR S/C
132 KV EST CAL - KASB CESC S/C
132 KV EAST CALCUTTA - PRINCEP STRT S/C
132 KV KASB CES - JADAVPUR S/C

Constraints of 132 KV AC lines in N-1 contingency

132 KV MAHACHHANDA MANKAD D/C	132 KV HALDIA1 TPH 132 D/C
132 KV NEW COSSIPORE - BT RD S/C	132 KV BISNUPUR CK ROAD S/C
132 KV ULUBERIA - DOMJUR D/C	132 KV MIDNAPUR PINGLA S/C
132 KV ASHOK NAGAR - JEERAT D/C	132 KV MIDNAPUR BALICHAK S/C
132 KV PURULIA SANTLDI D/C	132 KV KHARAGPUR RESHMI S/C
132 KV HOWRAH LILUAH CKT 3 AND 4	132 KV VIDYASAGAR TATA KBTA S/C
132 KV CHANDITALA DOMJUR D/C	132 KV TATA KBTA RESHMI MTLK S/C
132 KV HOWRAH BOTANICAL GARDEN D/C	132 KV MIDNAPUR CKROAD S/C
132 KV KTPS KOLAGHAT D/C	132 KV BISNUPUR NEW BISNUPUR TRIPLE ckt
132 KV KTPS BAGNAN D/C	132 KV BANKURA NBSNPR D/C
132 KV KALYANI DHARAMPUR S/C	132 KV CONTAI RAMNAGAR S/C
132 KV RISHRA - RIS CESC D/C	132 KV BONNGA KRISNANAGAR D/C
132 KV DEBAGRAM KRISNANAGAR D/C	132 KV MANKAD BIDHANNAGAR D/C
132 KV BANDEL KALYANI S/C	132 KV CHANDITALA DOMJUR D/C
132 KV RANAGHAT DHARAMPUR D/C	132 KV SAMSI GAJOLE D/C
132 KV SALT LAKE KLC BANTALA D/C	132 KV ALIPURDUAR COCHBIHAR D/C
132 KV SONARPR RENIA D/C	132 KV AMTALA NAZIRPUR DOUBLE ckt
132 KV JOKA RENIA D/C	132 KV AMTALA REJINAGANR1 ckt
132 KV JEERAT MAHISHPOTA D/C	132 KV EGRA CONTAI D/C
132 KV JEERAT DHARAMPUR D/C	132 KV NEW HALDIA BAJKUL S/C
132 KV MIDNAPUR VIDYASAGAR D/C	132 KV BARJORA BIDHANNAGAR D/C
132 KV SAITHIA SADAIPUR D/C	132KV PANAGARH BIDHANNAGAR D/C
	132 KV N TOWN AA1 TAP GA1SL S/C

132 KV SATGACHHIA KALNA D/C	132 KV SALLAKE GIS TAP GA1SL S/C
132 KV MANKADI BIDHNNRBI D/C	132 KV N TOWN AA1 SALLAKE GIS S/C
132 KV TITAGARH DHARAMPUR D/C	132 KV SUBHAS SONAKHALI D/C
132 KV KATWA SALAR D/C	132 KV GOKORNO SALAR D/C
132 KV RAGHUNATJGANJ NEW SAGARDIGHI S/C	132 KV NAZIRPUR DOMKOL D/C
132 KV A ZONE B ZONE S/C	132 KV DPL1 A ZONE S/C
132 KV DPL B ZONE D/C	132 KV PARK LANE EMSS S/C
132 KV FALTA LAKHIKANTAPUR D/C	132 KV TARATALA PRINCEP S/C
132 KV RAIGUNJ DALKOLA D/C	132 KV BBD BAG TARATALA S/C
132 KV BALURGHT GANGARAMPUR D/C	132 KV BBD BAG PRINCEP S/C
132 KV ARAMBAG RAINA D/C	132 KV CHAKMIR BUDGE BUDGE D/C
132 KV ARAMBAG TARAKESHWAR D/C	132 KV TARATALA MAJERHAT S/C
132 KV ARAMBAG BIRSINGHA D/C	132 KV EAST CACUTTAL CHITPORE TSS S/C
132 KV MALDAWI KHEJURIA D/C	132 KV PARK CIRCUS EMSS S/C

Voltage Level	Substation	Observed Voltage in simulation (p.u) < 0.9 p.u	Voltage Level	Substation	Observed Voltage in simulation (p.u) < 0.9 p.u
132	KAKDWIP	0.8259	132	RISHRA 1	0.8906
132	RAMGANGA	0.8261	132	CHNDTLA1	0.8911
132	FALTA	0.829	132	HINDMTR1	0.8928
132	SERAKOL	0.8333	132	MAHISHPOTA	0.8939
132	PRINCEP STREET	0.8447	132	DANKUNI	0.8943
132	BONNGA1	0.8471	132	BIGHATI	0.8952
132	LAKHIKANTAPUR	0.8504	132	KALNA	0.8959
132	DOMKOL	0.8524	132	MAHACHHANDA	0.8961
132	TRS 1	0.8542	132	NEWTOWN AA1	0.8962
132	SONAKHALI	0.8542	132	BARDHAMAN	0.8976
132	BT RD	0.8583	220	N.TOWNA	0.898
132	NEW COSSIPORE	0.8592	132	KONA GIS	0.8984
132	DBGRM 1	0.8604	220	EMSS	0.8986
132	TRS	0.8607	220	KASBA	0.8986
132	TITAGARH	0.8608	132	BRS	0.8999
220	LAKHIKANTAPUR	0.8647	132	LILUAH1	0.9004
132	NAZIRPUR	0.872	132	KALYANI	0.9008
132	MINAKHA	0.875	220	KLC BANTALA	0.9008
132	SUBHASgram	0.8802	132	SONARPR	0.9012
132	Ranaghat	0.8809	132	GANGRPR	0.9013
132	ULUBERIA	0.8818	132	KATWA	0.9013
220	N COSSIPORE	0.884	132	KLC BANTALA	0.9031
220	PRINCEP ST	0.8855	132	BARUIPUR	0.9035
132	BASIRHAT	0.886	132	DHATRIGRAM	0.904
132	PARKLANE	0.8862	220	SUBHASGRAM	0.9061
132	KRISHNANAGAR	0.8864	132	DHRMPUR	0.9062
132	AMTALA	0.8864	220	BARUIPUR	0.9068
132	PARK CIRCUS	0.8866	132	JADAVPUR1	0.9075
132	EMSS	0.888	132	SATGACHHIA	0.9075

132	JOKA	0.8882	132	TAP A1A3KLC	0.9077
220	EMSS	0.8884	132	ASOKNAGAR	0.9082
132	RISHRA CESC	0.8886	132	BALURGHAT	0.9089
132	SALT LAKE GIS	0.889	132	SALT LAKE	0.9093
132	RENIA	0.8904	132	TAP KKS	0.9094
132	TAP GA1SL	0.8905	220	KRISHNANAGAR	0.9099

Members may discuss.

ITEM NO. B.3: Multiple tripping of EHV lines in India-Bhutan corridor in the month of April 2023: ERLDC.

There have been 18 tripping instances of EHV lines in India-Bhutan corridor. As per relay details submitted, majority of fault lies in Bhutan's jurisdiction. With upcoming monsoon, availability of these EHV lines is must for reliable evacuation of hydropower from Bhutan. Further, multiple discrepancies were observed in protection. Bhutan is requested to investigate the issues to avoid further tripping and take remedial measures for proper operation of protection scheme. Details of tripping are attached at **Annexure B.3**.

ERLDC may update.

ITEM NO. B.4: Submission of updated SPS Scheme by constituents: ERLDC.

With continued load growth and changes in network configuration, it is imperative to review SPS scheme installed in their respective control area at regular intervals. All states are requested to review the same and submit updated SPS scheme along with new scheme implemented in last one year, if any, to ERLDC. List of existing SPS in STU network is given in **Annexure B.4**.

Further only few states are reporting operation of SPS to ERLDC in real time. The same may be promptly intimated to ERLDC control room by all utilities.

Members may update.

ITEM NO. B.5: Monthly updating about RE Capacity addition: ERLDC.

Gestation period of any RE plant (Solar/Wind/Micro Hydro/Biomass etc.) is very less as compared to the conventional Thermal & Hydro power plant. It is observed that small cluster of RE projects are being added to STU network each month mainly in Bihar & Odisha. However, the details about the new RE capacity are not being informed to ERLDC and telemetry data are also not available to ERLDC. Due this lack of visibility, ERLDC may face real challenge.

The details of information available at ERLDC is as follows.

Constituent	Solar Capacity (MW)	Non-Solar Capacity (MW)			Total (MW)
		Small Hydro	Biomass	Wind	
Bihar	130.0	28.5	111.9	-	270.4
Jharkhand	16.0	-	-	-	16.0
DVC	6.0	-	-	-	6.0
Gridco	434.5	-	45.0	-	479.5
WB	115.0	20.0	31.0	2.0	168.0
NTPC (Talcher Solar)	10.0	-	-	-	10.0
Total	711.5	48.5	187.9	2.0	949.9

In view of this, all states are requested to update the monthly addition of new RE capacity and current install capacity. Telemetry information also need to be sent to ERLDC SCADA on time-to-time basis.

ITEM NO. B.6: Agenda by Teesta – III HEP.

Following issues were raised by Teesta-III HEP vide mail dated 11.05.2023.

1. HOT line is not working between Teesta III – Rangpo. The communication between Teesta III to Rangpo end panel was checked and it was found that it is working but problem is at Rangpo S/s end which needs to be identified and rectified.
2. Genus Meter of Unit 4 is to be replaced.
3. OPGW work end date to be confirmed. Regular extension in the shutdown for last 5-6 days. Need to be completed at the earliest.

Teesta-III may explain.

ITEM NO. B.7: Agenda by SLDC West Bengal.

1. The decision on changing CT i.r.o 220 kV Rajarhat-New Town AA3 sub-station D/C with presently available CT of ratio 1600/1 for the time being is still pending. This change will enable it to increase the SPS setting at New Town AA3 sub-station from existing 780 Amp to 1000+ Amp atleast at the cost of sacrificing 220 KV bus differential scheme at New Town AA3 sub-station. This will be a temporary arrangement to handle summer months till procurement of 1600/2 CT. Matter may be decided through discussion.
2. 220 KV Bidhannagar-Waria D/C tie lines were disconnected since the time of LILO of Parulia-Waria D/C at DSTPS, creating problem for West Bengal system to cater load, particularly in present scenario of having one ICT very often due to Bucholz alarm / trip of ICT one at Bidhannagar. To avoid overloading in the segment of DSTPS to Waria and associated system of DVC, these tie lines are made off continuously which results in the suffering of West Bengal

system around Bidhannagar. The reason for the congestion and effective ways to resolve this issue may please be discussed.

SLDC West Bengal may update.

ITEM NO. B.8: Shutdown proposal of generating units for the month of May 2023.

Proposed Maintenance Schedule of Thermal Generating Units of ER during 2023-24 in the month of June'2023						
System	Station	Unit No.	Capacity(MW)	Period (as per LGBR 2021-22)		No. of Days
				From	To	
WBPDC	Kolaghat TPS	4	210	16.05.2023	04.06.2023	20
WBPDC	Sagardighi TPS	3	500	27.05.2023	30.06.2023	35
NPGCL	Nabinagar TPS	3	660	01.06.2023	05.06.2023	5

NTPC vide mail dated 10.05.2023 submitted that as per LGBR approval overhauling of Farakka U#4 was scheduled from 01-11-2023 to 15-12-2023, however due to recent problems identified in the boiler it is requested to allow shutdown of Farakka U#4 for a period of 45 days from 16-06-2023 to 30-07-2023 .

DPL vide mail dated 18.04.2023 submitted that they want to carry out the overhauling of unit #8 (1*250) MW (as unit #8 overhauling was postponed which was scheduled for the month December-2022 due to some unavoidable reasons) from 01.08.2023 to 10.09.2023 (already date allocated for unit #7 as per above list in your earlier mail) and DPL Unit #7(1*300) MW O/H has been rescheduled for the month of 01st November to 31 December 23.

NTPC Darlipalli vide letter dated 15.05.2023 submitted that unit-2 LP Turbine differential expansion is on reducing trend and unit can be safely run till threshold limit is reached as per OEM guidelines. It is apprehended that LP differential expansion is likely to touch threshold limit in the 2nd week of June 2023.

Members may update.

ITEM NO. B.9: Planned over-hauling of Thermal Power Plants for FY 2023: BSPHCL

The LGBR of FY-2023-24 has approved the shutdown of many thermal power plants as mentioned in the following table, which coincides with the peak demand period of Bihar i.e., June, July, August and September 2023. According to the demand projections for aforementioned months, Bihar is expected to experience power deficit scenario particularly in peak hours.

SL No.	Plant Name	From Period	To Period	No. of Days	Quantum Affected - MW
1	Nabinagar STPS (NPGCL)	01.06.2023	05.06.2023	5	545.66

	unit - 3				
2	KhSTPS (NTPC) unit - 1	01.07.2023	04.08.2023	35	85.75
3	Nabinagar STPS (BRBCL) unit - 2	01.07.2023	14.08.2023	45	25
4	Nabinagar STPS (NPGCL) unit - 2	01.07.2023	18.09.2023	80	545.66
5	JITPL (IPP) unit - 1	01.07.2023	14.08.2023	45	114
6	KBUNL unit - 3	21.08.2023	04.10.2023	45	141.5
7	GMR (IPP) unit - 2	25.09.2023	09.10.2023	15	130

It is worth mentioning that in the current scenario, Bihar's overall demand is reaching 6000 MW and is expected to further increase in the upcoming months. Unavailability of above units will be a serious concern in optimal management of power portfolio.

Therefore, in view of the above scenario, it is requested that the proposed shutdown of aforesaid plants be postponed to the lean demand period of Bihar i.e. November 2023 to March 2024.

In the 203rd OCC meeting, representative of NTPC submitted that further shifting of shutdown of units would cause an outage of around 4000 MW of power during the month of December 2023.

Representative of NTPC Barh submitted that the overhauling of unit-4 of Barh is pending since last 3 years. HP modelling and boiler modification works are planned to be undertaken during the shutdown. Last year the shutdown was planned during the month of November 2022 which was deferred on request of Bihar due to ongoing shutdown of NPGC.

Upon enquiring about the commissioning of unit-2 of Barh, it was informed that the CoD would be done by the end of May 2023. The shutdown approval for Barh unit-4 would be considered after CoD of unit-2.

Representative of KBUNL submitted that capital overhauling of unit is pending since long (6 years) and boiler license renewal would also be due in September 2023.

NTPC was advised to defer the shutdown of Nabinagar STPS (NPGCL) unit – 2.

OCC approved the shutdown of the following units as per the above-mentioned schedule.

- Nabinagar STPS (NPGCL) unit – 3.
- KhSTPS (NTPC) unit – 1 (for 30 days).
- Nabinagar STPS (BRBCL) unit – 2 (subject to consent from Railways)
- JITPL unit-1.
- KBUNL unit – 3.

Representative of GMRKEL was not present during the discussion.

Keeping in view the urgency of power requirement of Bihar during its high demand period, OCC advised Bihar to explore the possibilities of availing surrendered power from PuSH Portal to meet its power requirement.

BSPHCL vide letter dated 27.04.2023 requested to defer the shutdown of those plants which have been allowed in the 202nd OCC meeting during peak demand period (July, August and Sept 2023) of Bihar.

Bihar may update.

ITEM NO. B.10: Review of Automatic Under Frequency Load shedding in ER

In order to ensure Grid Security of Power System, Automatic Under Frequency Load Shedding scheme has been adopted by the entities in the Eastern Region as per the decision taken in the previous OCC Meetings held by ERPC, Kolkata. The quantum of load shedding at required setting of frequency has to be revised from time to time depending on the assessment in respect of grid stability requirement. The present AUFLS scheme in force since few years which may need a review.

Since the System Demand of each entity has increased compared to previous years, ERLDC is requested to study the revised requirement if any required in respect of Eastern Region and intimate ERPC, Kolkata the enhanced quantum required for AUFLS entity wise at different frequency settings for further necessary action.

Members may discuss.

ITEM NO. B.11: Strengthening of State Load Despatch Centers

“In the 46th ERPC meeting, the necessity of strengthening of State Load despatch Centres (SLDC) was emphasised through induction of appropriate manpower in line with CABIL recommendations. The need for strengthening SLDCs was appreciated by most members, and it was agreed that all States including DVC would do the needful in this direction. It was also mentioned that the mechanism of Scheduling, Accounting, Metering and Settlement system would be in place with SAMAST implementation. Bihar has already completed while West Bengal / Odisha are in various phases of execution. Recently DVC has shown intent in implementing SAMAST while Jharkhand/Sikkim are yet to submit DPR for PSDF funding. All the states are requested to update the status of manpower strengthening in the respective LDCs and SAMAST implementation.

Large LDC: West Bengal

Medium LDC: Bihar, Odisha, Jharkhand, DVC

Emerging LDC: Sikkim.

Members may update.

ITEM NO. B.12: Follow up Agenda

SL No	Issue/Agenda	Discussion in last OCC Meetings	Update/Status
1.	<p><u>De-stringing of overhead conductor in Power Line Crossing span of 220kV D/C Farakka-Lamatia Line in between span (Location No.-5 & Location No.-6) by JUSNL in order to protect underlying 400 kV S/C Farakka Sagardighi I & II TL (Loc No.- 3 & 4) of POWERGRID due to severe/repetitive theft incidents by miscreants near to Farakka Plant</u></p> <p>220kV Farakka-Lalmatia TL is under break-down condition due to tower collapse incidents since 21.04.2021. Since the line is under off condition for long, at several locations of the said line near to Farakka serious tower member theft/conductor theft incidents are occurring.</p> <p>During patrolling of 400 kV S/C Farakka Sagardighi I & II TL on dated 07.11.2022, huge no. of missing members has been observed in the Powerline crossing towers of 220 KV Farakka Lalmatia TL (owned by JUSNL) situated in village: Jorpukuria, Farakka crossing over Loc 03 & 04 of both 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID.</p> <p>Considering the fact that any incident of collapse of towers of the mentioned crossing towers of Farakka Lalmatia line shall damage our existing 400 kV Farakka Sagardighi TL which is already more than 35 years old. Earlier also, an incident of Tower collapse of 220 kV Farakka Lalmatia line over POWERGRID 400 kV S/C Farakka Durgapur 1 & 2 TL had occurred in the year 2020 which had severely damaged the 400 kV S/C Farakka Durgapur 1 & 2 lines. Restoration of the lines were carried out under extreme ROW situations.</p> <p>Considering the seriousness of the issue JUSNL was requested to rectify the towers Loc No.-5 & 6 of 220kV Farakka-Lamatia Line on urgent basis. Vide mail dated 08.12.2022, JUSNL have informed that they have rectified the affected towers but considering the area being severe theft prone they will not able to save the towers in</p>	<p>In the 202nd OCC meeting, representative of Jharkhand submitted that out of 21, foundations work of 18 towers and erection works of 12 towers have been completed. The line would be restored by the end of May 2023.</p> <p>Due non- participation of agencies in the tendering work of watch and ward, retendering activities are under progress.</p>	

	<p>near future.</p> <p>In view of above considering the seriousness/repetitive theft incidents in towers near to Farakka Plant, M/s JUSNL is requested to remove the conductors in between Span Loc No.- 5 & 6 of 220kV D/C Farakka-Lalmatia so that underlying POWERGRID lines 400kV Farakka-Sagardighi-I & II may be protected.</p>		
2.	<p><u>Islanding Schemes in Eastern Region</u></p> <p><u>4.1. Patna Islanding Scheme:</u> In the meeting held on 28th December 2020 and chaired by the Hon'ble Minister of State (IC) it was directed that islanding schemes should be implemented for all major cities of the country considering all the strategic and essential loads. Subsequently, in line with the direction given in the meeting, the subject matter was discussed in PCC meeting of ERPC, and it was finalized that new islanding scheme would be implemented for capital city of Patna & Ranchi.</p>	<p>In the 200th OCC Meeting, Representative of NTPC submitted that Internal approval is under process. 3 months of timeline would be required before award.</p>	-
	<p><u>4.2. Chandrapura Islanding Scheme:</u> The scheme detail in brief is as follows: ➤ The CTPS-B islanding scheme is to be designed with two units of CTPS-B (2x250 MW) generating station as participating generator and connected loads at CTPS, Putki, Biada, Nimiaghata & Patherdih. The estimated off-peak and peak load in the proposed islanding system is 280 MW & 420 MW respectively. ➤ The islanding frequency for CTPS-B islanding system was decided as 48.4 Hz.</p>	<p>In the 196th OCC meeting, DVC representative submitted that the work is expected to be completed as per the given timeline.</p>	-
	<p><u>4.3. IB-TPS Islanding Scheme:</u> The scheme was finalized in the special Meeting on Islanding Scheme of IB-TPS held at ERPC, Kolkata on 12th December 2018. In special meeting held on 06.08.2021, OPGC representative informed that work order had been</p>	<p>In the 197th OCC meeting, OPGC representative was not present during the discussion. OPTCL representative submitted that the</p>	-

	<p>placed on OEM (M/s BHEL) for implementation of the Islanding scheme at IB TPS units.</p> <p>OPGC was also advised to take up the issue with their highest authority as well as with the OEM for expediting the implementation of islanding scheme.</p>	<p>details would be shared shortly.</p> <p>Representative of OPGC informed that during AOH in the month of March'2023 if the turbine vibration issue gets resolved then they would go ahead with the testing.</p>	
3.	<p><u>Outage of Important Transmission System</u></p> <p><u>132kV Sagbari–Melli.</u></p> <p>Sikkim vide mail dated 09.06.2021 updated the following status:</p> <ol style="list-style-type: none"> 1) In loc 82,83 & 84 we have low ground clearance which need hill cutting but if needed TL can be charged after putting temporarily barbed wire fencing. 2) In loc 98-99 a house had been constructed just below the line and warning had been issued to the owner for not to do vertical extension of the house till any such arrangement is made. 3) In loc 116 &117 land owner demanding for intermediate tower and not allowing for us to clear the jungles. 4) Loc 128 is in dilapidated condition due to sinking effect posing threat to lives and properties. Local public are asking to shift the tower in safe place before restoration of supply in the TL. 5) 80% of jungle clearance has been completed and remaining 20% is in Forest area most of it is under west district and waiting for permission from Forest department. 6) The delay in obtaining permission for following trees in forest land is that it cannot be ascertained whether FCA clearance during construction of TL was obtained as the record is not available either in power department or in DFO Office. Regarding this it had been told by ERPC that once obtaining environment clearance at the time of construction there need not to take permission for further clearance of ROW from Forest dept and this matter is been conveyed to the Forest department but they informed us as 	<p>In 49th TCC & ERPC Meeting, Sikkim representative submitted that the 132kV Sagbari–Melli line would be restored by 15th April 2023.</p>	-

	per Forest Act of Sikkim state permission has to be obtained for fresh felling with payment of compensation. File for approval is being send to conservator of Forest from DFO on 10/6/2021.		
4.	<p><u>Ensuring N-1 reliability criteria at 400/220 KV Subhashgram (PG) S/s.</u></p> <p>The reliability issue of Subhashgram (PG) was discussed in the 46th TCC and ERPC meeting. In the meeting it was deliberated that there is an urgent requirement for installation of 6th 400/220kV, 500 MVA ICT at Subhashgram (Powergrid) S/s. On request of West Bengal, CESC agreed to bear the cost associated with the installation of the said ICT and its future maintenance. Further, CESC requested Powergrid to execute the project on deposit work basis. In the 194th OCC meeting, Powergrid representative submitted that decision in this regard would be taken by their corporate office and they would submit the details as and when it is received. ERLDC suggested Powergrid for applying requisition of shutdown regarding implementation of SPS scheme. However, no shutdown request has been received by ERLDC till date.</p>	<p>In the 202nd OCC meeting, representative of Powergrid submitted that a copy of MoU has been shared with CESC and confirmation of the terms & conditions of MoU is awaited. The tendering works are also under progress. The tender opening would be done on 15th May 2023.</p> <p>Representative of CESC submitted that they would sign the MoU shortly after a meeting between the Finance departments of respective parties.</p>	
5.	<p><u>Integration of (Interface Energy Meter) IEMs into SCADA/EMS system for telemetry of meter data to SLDCs.</u></p> <p>The existing SEMs are having two communication ports, which can function independently for fetching the SEM data. The optical port is being used for fetching the weekly DSM data through Common Meter Reading Instrument (CMRI), for accounting purpose. The other RS 232 port available remains unused, the online real time data can be fetched from the existing SEM through the unused RS 232 port. This arrangement does not require additional meters or new communication facilities and therefore no additional cost is involved.</p>	<p>In the 202nd OCC meeting, Powergrid submitted that M/S. Genus has confirmed that as the matter is related to parallel data transmission to 02 different data center, cyber security aspect and data decryption method to be discussed first. However both RS 485 & Ethernet port of existing SEM can be configured subjected to data size and handling method.</p> <p>Genus also confirmed that, same thing will be discussed during training session at ERPC during first week of May and expected</p>	

demonstration afterwards.

Considering above, the agenda may be kept in abeyance till June-2023 such that every activity for demonstration can be planned and executed.

6. Status of SAMAST, ABT implementation and certification of system operators in states.

Implementation of SAMAST and ABT in all the states is a prerequisite for improving the reliability of grid considering the complexities involved in managing the large interconnected Indian grid. Further skilled, certified manpower is the key to operate the grid safely and securely. Various initiatives are being taken mutually by ERLDC and the states for successful implementation of the SAMAST/ABT in the states.

The status of SAMAST, ABT implementation and certification of system operator of various states of eastern region is given below:

Name of the state	Status of implementation of SAMAST	Number of Certified Operator
Bihar	Completed	4+(1 appearing in the exam in March'23)
Jharkhand		2
Odisha		11
DVC		50% of the operators will appear for the certification exam by Sep'23
WB		2
Sikki		14 nos.

In the 202nd OCC meeting, representative of ERLDC submitted that no further update is there.

Representative of DVC submitted that they are about implement the ERP program for which all the modules in the SAMAST have been included.

Initial shortlisting of vendors for tendering has also been done.

		m		system operators will be appearing for certification exam in March'2023																																																																										
7.	<p><u>Replacement of Heavily time drifted L&T meters in Eastern Region</u></p> <p>In 47th TCC & ERPC meeting, it was deliberated that in view of stringent provisions in new DSM regulations, the heavily time drifted L&T make SEMs need to be replaced on priority basis. Accordingly, PowerGrid was advised to replace the heavily time drifted meters on priority basis in co-ordination with ERLDC & concerned utilities.</p> <p>Accordingly, ERLDC has provided a phase-wise replacement list of L&T meters to Powergrid for further necessary action at their end.</p> <table><tr><th>Utility</th><th>Substation</th><th>SEM to be replaced</th><th>SEM replaced</th><th>Remarks</th></tr><tr><td rowspan="6">NTPC</td><td>KAHALGAON</td><td>38</td><td>2</td><td rowspan="6">Phase-1</td></tr><tr><td>BARH</td><td>13</td><td>0</td></tr><tr><td>BRBCL</td><td>3</td><td>0</td></tr><tr><td>KANTI</td><td>6</td><td>6</td></tr><tr><td>TALCHER</td><td>39</td><td>5</td></tr><tr><td>FARAKKA</td><td>14</td><td>2</td></tr><tr><td>DVC</td><td>DHANBAD</td><td>2</td><td>2</td><td></td></tr><tr><td rowspan="6">WB</td><td>NBU</td><td>1</td><td>0</td><td></td></tr><tr><td>HALDIA</td><td>2</td><td>0</td><td></td></tr><tr><td>DALKHOLA</td><td>3</td><td>0</td><td></td></tr><tr><td>BIDHANNAGAR</td><td>3</td><td>0</td><td></td></tr><tr><td>MALDA</td><td>2</td><td>0</td><td></td></tr><tr><td>BIRPURA</td><td>1</td><td>0</td><td></td></tr><tr><td rowspan="4">PGCIL</td><td>BINAGURI</td><td>2</td><td>0</td><td></td></tr><tr><td>BIRPURA</td><td>5</td><td>0</td><td></td></tr><tr><td>DURGAPUR</td><td>5</td><td>5</td><td></td></tr><tr><td>MALD</td><td>4</td><td>0</td><td></td></tr></table>				Utility	Substation	SEM to be replaced	SEM replaced	Remarks	NTPC	KAHALGAON	38	2	Phase-1	BARH	13	0	BRBCL	3	0	KANTI	6	6	TALCHER	39	5	FARAKKA	14	2	DVC	DHANBAD	2	2		WB	NBU	1	0		HALDIA	2	0		DALKHOLA	3	0		BIDHANNAGAR	3	0		MALDA	2	0		BIRPURA	1	0		PGCIL	BINAGURI	2	0		BIRPURA	5	0		DURGAPUR	5	5		MALD	4	0		<p>In the 202nd OCC meeting, Representative of ERLDC submitted that West Bengal had received some meters which would be replaced by the end of April 2023.</p> <p>Representative of NTPC was advised to provide the details of number of meters installed at Barh and NTPC Talcher.</p> <p>Further, representative of NTPC was of the view that the meters should be installed by Powergrid.</p> <p>Further, a concern of certification, i.e., whether the meter has been installed properly without any tampering was raised by NTPC.</p> <p>Representative of Powergrid submitted that the issue may be referred to CTU for further clarification.</p> <p>Representative of ERPC submitted that the issue has also been raised in the</p>	
Utility	Substation	SEM to be replaced	SEM replaced	Remarks																																																																										
NTPC	KAHALGAON	38	2	Phase-1																																																																										
	BARH	13	0																																																																											
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DVC	DHANBAD	2	2																																																																											
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	DURGAPUR	5	5																																																																											
	MALD	4	0																																																																											

Agenda for 203rd OCC Meeting

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			A				NPC forum. OCC advised NTPC to install the meters using their own resources on priority basis till any clarification is given regarding the issue by the NPC forum.	
			SUBHA SGRAM	2	0			
			BERHAMPUR	2	2			
		IPP	CHUZACHEN	5	5	Phase-2		
		JHARANDA	CHANDIL	3	3			
			GARWA	1	1			
			JAPLA	1	1			
			JAMTARA	1	1			
8.	<u>Ensuring healthiness of ADMS</u>						-	

State	Criteria for ADMS operation	Number of instances for which ADMS criteria satisfied	Number of instances for which detail received	Discussion regarding previous month performance	Update in 201 st OCC meeting
West Bengal	1. System Frequency < 49.7 Hz 2. WB over-drawl > 150 MW 3. Delay = 4 min	1	Nil	-	
Jharkhand	1. System Frequency < 49.9 Hz 2. Jharkahnd over-drawl > 25 MW 3. Delay = 3 min	130	Nil	-	
DVC	1. System Frequency < 49.9 Hz 2. DVC over-drawl > 150 MW 3. Delay = 3 min	53	Nil	-	
Odisha	1. System Frequency < 49.9 Hz 2. Odisha over-drawl > 150 MW 3. Delay = 3 min	29	Nil	-	

9.	<u>Commissioning status of ADMS</u>				
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Automatic demand management scheme (ADMS) is already commissioned in West Bengal, DVC and Jharkhand. However, for Bihar it is yet to be implemented, the last status as confirmed in the earlier meeting is as follows.

Sl No	State/Utility	Logic for ADMS operation	Target Date
1	Bihar	F < 49.7 AND deviation > 12 % or 150 MW	First week of March-2023

In the 202nd OCC meeting, Representative of Bihar submitted since some new feeders are added in the ADMS, testing is under progress, after which commissioning would be done.

10.

Revised connectivity for Laxmikanthpur 400/132 KV S/s and split bus arrangement at Laxmikanthpur S/s

In the 2nd meeting of ERSCT held on 05-07-2019, CTU informed that the scope of works for establishment of 400/132kV New Laxmikanthpur substation through LILO of Subhashgram (POWERGRID) – Haldia 400kV D/c line at New Laxmikanthpur S/s under intra-state has already been approved on technical grounds by all the stakeholders including HEL and CESC (also recorded in the minutes of the meeting). HEL was requested to provide go ahead on the said scope before the next CEMTS-ER as further delays in implementation of New Laxmikanthpur S/s may jeopardise reliability of power supply in Kolkata area.

In 49th TCC Meeting, The Committee submitted the following:

1. Two meetings have been conducted on 20.12.2022 and on 24.01.2023 to discuss revised connectivity for Laxmikanthpur 400/132 KV S/s. The final report is under preparation.
2. Two measures have been recommended by the Committee:
 - a) Final arrangement: One circuit of 400kV New Jeerat-Subhashgram D/C to be LILOed at 400/132 KV Laxmikanthpur S/s. Necessary load flow study has to be conducted by CTU for this arrangement.
 - b) Interim arrangement: One circuit of 400kV HEL-Subhashgram D/C to be LILOed at 400/132 KV Laxmikanthpur S/s. Transient study has already been conducted by HEL and the same has been submitted to

		<p>OEM for suggestions/feedback. However, the same is awaited from OEM.</p> <p>3. The Committee requested TCC for extension of timeline for submission of the final report.</p> <p>TCC advised the following:</p> <ol style="list-style-type: none"> 1. HEL to expedite the matter with OEM in getting their feedback. 2. CTU to conduct the load flow study at the earliest. 3. Committee to submit the final report by April'2023. 	
11.	<p><u>Operational challenges in Jharkhand network due to multiple long outages/tripping</u></p> <p>In Jharkhand network, 400/220 kV 2 X 315 MVA Ranchi ICTs and 400/220 kV 2 X 315 MVA Patratu ICTs and 220 kV Tenughat-PTPS S/C were meeting the demand of Ranchi capital city.</p> <p>At present, 400/220 kV Patratu substation both ICTs are out of service. This led to shifting of loads being fed from this substation back to Ranchi substation's ICTs. In addition, due to the outage of 220 kV Patratu-Tenughat S/C, there is no support from Tenughat (TTPS) power plant. This is leading to the entire Ranchi City demand being fed by 2X315 MVA ICTs Ranchi (PG). Presently Ranchi ICTs loading is to the tune of 160-190 MW/ICT. In this network configuration, Ranchi S/s one 315 MVA 400/220 kV ICT outage sensitivity on other ICT is more than 90%.</p> <p>Further degrading the overall situation is outage of 220 kV Ranchi-Hatia 2 on tower collapse. This is leading to n-1 loading violation for other two circuits i.e., 220 kV Ranchi-Hatia 1 and 3 which are loaded above more than 150</p>	<p><u>400 kV/220kV 315 MVA ICT 1 & ICT2 AT PATRATU</u></p> <p>In the 49th TCC Meeting: The following deliberations took place:</p> <ol style="list-style-type: none"> 1. Representative of Powergrid informed that: <ol style="list-style-type: none"> a. 315 MVA ICT-1 would be ready for testing by 18th April'2023. b. By 28th April'2023 it would be dispatched. c. By 15th May'2023 the ICT will be available at site. d. By end of May'2023 the said ICT will be put in service. 2. TCC advised Powergrid to carry out necessary activities at Patratu end to make the site ready for installation of the ICT. TCC further advised Powergrid to provide weekly progress report to ERPC, ERLDC 	

	<p>MW/ckt.</p> <p>A list of major elements outages in JUSNL are provided below:</p> <ul style="list-style-type: none"> • 400 KV/220KV 315 MVA ICT 2 AT PATRATU: 27-09-2022 (DGA violation) • 400 KV/220KV 315 MVA ICT 1 AT PATRATU: 01-08-2022 (Buchholz Relay) • 220 KV/132KV 100 MVA ICT 2 AT LALMATIA: 22-01-2019 (FAILURE OF HV SIDE BREAKER) • 220 KV/132KV 100 MVA ICT 3 AT CHANDIL: 30-04-2020 (ICT failed due to fire) • 220 kV Tenughat-Patratu S/C: Under long shutdown for shifting work • 220 KV-RANCHI-HATIA-2: 24-09-2022 (Tower collapse) • 220 KV-FSTPP-LALMATIA-1: 21-04-2021 (Tower collapse) 	<p>and Jharkhand.</p> <ol style="list-style-type: none"> 3. TCC also advised Powergrid to arrange for transport of ICT-2 in such a way that once the bay at M/s CGL workshop in Bhopal gets empty after shifting of ICT-1 to Patratu, rectification work of the ICT-2 may be started. 4. Representative of DVC apprised the forum that early restoration of the ICTs is also essential for enabling Jharkhand to provide power assistance of around 30-35 MW through 132 KV Tie line Patratu (JUSNL) - Patratu (DVC) for reconductoring work of 132 kV D/C Ramgarh - Patratu line. 5. Representative of NTPC submitted that start-up power for 3*800 MW PUVNL Super Thermal Power Plant would be required by May-2023. Early restoration of 2*315MVA 400/220kV ICTs is required so that s/d of 400kV TTPS-PTPS may be facilitated which is currently charged at 220KV voltage level and to be charged at 400kV level (after necessary modification) to provide start-up power to PUVNL. <p>In 202nd POCC Meeting, Representative of Jharkhand submitted that the work of ICT-2 is under progress and the work would be completed by the end of May 2023.</p>	
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		<p><u>220kV/132 100 MVA ICT-2 AT LALMATIA (FAILURE OF HV SIDE BREAKER)</u></p> <p>In this regard estimate has been obtained from field, estimate is being scrutinized at Head Quarter level to get the work done with minimum cost. The expected date of completion is 31.03.2023.</p> <p>In the 201st OCC meeting it was informed that <u>220kV/132 100 MVA ICT-2 AT LALMATIA (FAILURE OF HV SIDE BREAKER):</u> W.O. would be issued by 1st week of April'2023.</p> <p><u>220kV/132kV 100 MVA ICT-3 AT CHANDIL</u></p> <p>In place of this ICT new ICT of 100 MVA will be procured soon. The tender is under technical evaluation stage and work order would be placed soon. The expected timeline of completion is July 2023.</p>	
12.	<p><u>Installation of Transmission Line Arrestor in 220 KV lines in North Bengal – PGCIL ER-II.</u></p> <p>220 KV D/C Siliguri-Kishanganj TL (erst 220kV D/C Siliguri-Dalkhola TL), 220kV D/C Birpara-Chukha TL, 220kV D/C Birpara-Alipurduar TL (erst 220kV D/C Birpara-Salakati TL) and 220kV S/C Birpara-Malbase TL were commissioned in the year 1986 under Chukha Transmission System. All the above-mentioned lines are located in the Himalayan Foothills and encounter severe lightning incidents during the monsoon period starting from April-Oct. As stated by NASA, The Himalayan Foreland is declared as Principal Lightening Hotspot zone.</p> <p>TFR measurement were carried out on the towers as well as section of line identified</p>	<p>In the 201st OCC meeting the following were deliberated:</p> <ol style="list-style-type: none"> 1. On query, representative of Powergrid submitted that inspection of 1st lot would start from 20th March'2023. And expected delivery at site is 27th March'2023. 2. OCC advised Powergrid to submit the weekly status of material supply to ERPC/ERLDC. 3. Representative of DGPC submitted that the tentative timeline, as submitted by Powergrid, 	-

	<p>during Post Fault Tripping Analysis. Tower Footing Impedance measurement shows high values in most of the tower locations in the said lines.</p> <p>Considering the increase in lightning phenomenon over North-Bengal area, it seems that existing Tower Earthing system seems not sufficient and as such as a system improvement measure it has been felt necessary to adopt installation of Transmission Line Arresters as per latest practices adopt world-wide in certain stretches of lines where instances of auto-reclosures and tripping are high. Matter has been discussed in detail during 198th OCC, 199th OCC meeting and subsequently in recently concluded 48th CCM at ERPC.</p>	<p>is acceptable from their side. However, any change in the timeline, may be intimated to Bhutan.</p> <p>4. OCC advised Powergrid to complete the work on priority basis in those line which are currently under shutdown and also to do work in multiple lines parallelly, whenever possible.</p> <p>5. OCC in-principle approved the shutdown. However, ERLDC would allow the shutdown on real time basis, depending upon the grid condition.</p> <p>6. OCC advised Powergrid to complete their work by April'2023. In no circumstances, shutdown will be allowed in the month of May'2023.</p>	
13.	<p><u>Removal of Internet Connectivity from AMR server at ERLDC as per compliance against cyber security guidelines.</u></p> <p>Presently total 163 No's SS are connected in AMR system, and total 142 No's stations are now communicating over LAN, and remaining 21 No stations are communicating over GPRS which require internet connectivity at AMR server at ERLDC.</p> <p>As per CEA directive, segregation to be done between IT/OT network for cyber security compliance and to maintain that Public IP based internet connectivity (Very much vulnerable) to be removed immediately from AMR server.</p>	<p>In the 202nd OCC meeting, OCC was of the view that ERLDC may conduct an online training latest by 30th April'2023.</p> <p>Representative of ERLDC advised Jharkhand to send the nominations of concerned persons for the training.</p> <p>OCC advised Jharkhand to coordinate with ERLDC regarding the requirements like cable, etc. in the training.</p>	

PART C: ITEMS FOR UPDATE

ITEM NO. C.1: ER Grid performance during April 2023.

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month April-2023 were as follows:

Average Consumption (MU)	Maximum Consumption (MU)/ Date	Maximum Demand (MW) Date/Time	Minimum Demand (MW) Date/Time	Schedule Export (MU)	Actual Export (MU)
535.8 MU	631.1 MU 18-04-2023	29359 MW, 19-04-2023 at 23:19 Hrs.	15185.2 MW, 01-04-2023 at 02:56 Hrs.	3182	3462

ERLDC/ERPC may highlight the performance of the ER grid.

ITEM NO. C.2: Primary Frequency Response of generating units in ER.

The availability of sufficient primary frequency response is one of the fundamental requirements of power system operation not only from reliability point of view but also from regulatory compliance point of view. Based on the assessed FRC re-testing of primary frequency response can be recommended. Therefore, the accurate and high-resolution data from generator end is extremely important in absence of which assessment of FRC is done as per low resolution ERLDC SCADA data. The plant wise data submission statistic for frequency event flagged by ERLDC up to 30.04.2023 is given below:

STATION	20.12.2022	12.01.2023	14.01.2023				17.01.2023	09.02.2023		16.03.2023	28.03.2023
	06:48	05:52	12:06	13:03	14:55	15:18	09:56	11:45	12:29	09:16	10:37
ADHUNK	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
BARH	Received	Received	Pending	Pending	Pending	Pending	Received	Pending	Pending	Pending	Pending
BRBCL	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	Pending
DARLIPALLI	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
DIKCHU	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
FARAKKA	Received	Received	Received	Received	Received	Received	Received	Received	Received	Pending	Pending
GMR	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
JITPL	Pending	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
KAHALGAON	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received

MPL	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
NPGC	Received	Received	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
TALCHER	Received	Received	Received	Received	Received	Received	Pending	Received	Received	Pending	Pending
TEESTA III	Received	Received	Received	Received	Received	Received	Received	Received	Received	Pending	Pending
TEESTA V	Received	Received	Received	Received	Received	Received	Received	Received	Received	Pending	Received

In view of the same all utilities are once again requested to kindly look into the matter and take necessary action to ensure consistent data submission for every frequency event flagged by ERLDC.

ITEM NO. C.3: Review of implementation of PSDF approved projects of ER.

In 10th NPC meeting held on 09.04.2021, RPCs were advised take up the matter for improvement of the fund disbursement and expeditious implementation of the sanctioned projects under PSDF.

In view of the above, status review of the projects being executed under PSDF funding in Eastern Region would be carried out on regular basis for expediting the projects. All the constituents are requested to furnish/update the status of their respective project in every month.

Concerned utilities may update the present status of the project as given in the **Annexure-C.3**.

Respective utilities may update.

ITEM NO. C.4: Status of implementation of AGC as a pilot project in States.

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.

WBPDCCL 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 states.

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

OCC advised SLDC Odisha and OPGC to interact with Barh NTPC & ERLDC to get the technical specifications & the procedure for implementation of AGC.

In the 183rd OCC meeting, OPGC representative informed that work order has been issued to M/s Siemens for implementation of AGC. The work would be carried out during the unit shutdown which is scheduled from 18.10.2021.

State	Station/Unit	Deliberation in 184 th OCC Meeting
DVC	Mejia unit#7 &8	DVC representative informed that NIT is to be floated.
Odisha	Unit#3 of OPGC	OPGC vide email dated 25 th Oct'21 informed that some additional data is needed from SLDC Odisha and after getting the same AGC would be implemented.

In the 185th OCC meeting, DVC representative informed that the NIT for implementation of AGC will be floated by 9th December 2021.

OPGC representative was not present during the discussion.

In the 186th OCC meeting, DVC representative informed that the NIT would be floated by 31st December 2021.

In the 187th OCC meeting, OPGC and DVC representative were not present during the discussion.

In the 188th OCC meeting, DVC representative informed that NIT was floated on 29th December 2021 and the bid opening would be done on 19th February 2022.

SLDC Odisha representative submitted that the order has been place to M/s Siemens for AGC implementation and the feasibility test would be conducted on 3rd May 2022.

Members may update.

ITEM NO. C.5: Status of UFRs healthiness installed in Eastern Region.

Members may update the status of UFR healthiness installed in Eastern Region.

Members may update.

ITEM NO. C.6: Status of Islanding Schemes healthiness installed in Eastern Region.

As per the decision taken in the meeting held on 8th July 2021 and chaired by member (GO&D),

CEA, data in prescribed formats may be submitted by concerned utilities to RPCs on monthly basis to certify the healthiness of the Islanding Schemes.

a. Format – I for RLDC/SLDCs

S.NO	Name of Islanding Scheme	Healthiness of Communication channel

b. Format – II for Generating Station

S.NO	Name of Islanding Scheme	Healthiness of Islanding Relay	Healthiness of Communication

			channel

c. Format – III for Transmission Utility/DISCOMs

S.NO	Name of Islanding Scheme	Elements considered for tripping to from Island	For communication-based tripping logic Of feeders	For UFR based tripping logic of feeders	
			Healthiness of Communication channel	Healthiness of PT Fuse and status of DC supply to UFR relay*	Healthiness of Relay#

* Where dedicated UFR relay have been installed for tripping of the feeders under Islanding scheme

Where UFR functions have been enabled within backup protection relay of the line.

d. Format – IV for collecting Relay details of the Islanding scheme.

The following format may be used to get Relay details of the Islanding scheme:

S.NO	Description	UFRs-for load relief (A)	df/dt -for load relief (B)	Relay for Island creation©
1	Relay location (S/s name)			
2	Relay make & model			
3	Frequency setting of the relay (at which load shedding is envisaged)			
4	Feeder name (voltage level and source-destination name) signaled by the Islanding Relay for separation /load shedding/separation from outside grid			

5	Quantum of load relief due to tripping of feeder (as per state's peak of previous year)			
6	Quantum of load (Min, Avg, Max in MW) on the feeder (as per state's peak of previous year)			

e. Format – V for Contact details of all Nodal Officer

Utility Name & Location	Name	Designation	Organization	Email ID	Mobile No.

Members may update.

ITEM NO. C.7: Latest Status of States ATC/TTC declared by States for the month of May-2023.

To harmonize the ATC/TTC calculation methodology and timeline One to one meeting and hands on training with each SLDC was conducted in the month of Sep-21 and Oct-21. As per the common agreed procedure and timeline ATC/TTC calculation in three-month advance and reconciliation of the TTC/ATC figure for the upcoming month between RLDC and SLDC has started from month Dec-21. Reconciled ATC/TTC figures for **June-2023** are as follows:

As per the agreed philosophy the status of month wise ATC/TTC submission is as follows:

Sl No	State/Utility	TTC (MW)		RM(MW)		ATC Import (MW)		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	6990	--	140	--	6850	--	May-23
2	JUSNL	1586	--	39	--	1547	--	June-23
3	DVC	1940	3371	72	56	1868	3315	June-23
4	OPTCL	3898	1338	145	70	3753	1268	June-23
5	WBSETCL	6475	--	450	--	6025	--	June-23
6	Sikkim	170	--	1	--	169	--	May-23

As per the agreed philosophy the status of month wise ATC/TTC submission is as follows:

State	Bihar	Jharkhand	DVC	Odisha	West Bengal	Sikkim
Month						
May-23	Submitted	Submitted	Submitted	Submitted	Submitted	Submitted
June-23	Pending	Submitted	Submitted	Submitted	Submitted	Pending
July-23	Pending	Submitted	Submitted	Submitted	Submitted	Pending
Aug-23	Pending	Pending	Submitted	Submitted	Pending	Submitted
Sep-23	Pending	Pending	Pending	Pending	Pending	Pending

Declaration of TTC/ATC on SLDC Website

Sl No	SLDC	Declared on Website	Website Link	Constraint Available on Website	Type of Website Link
1	BSPTCL	Yes	http://www.bsptcl.in/ViewATCTTCWeb.aspx?GL=12&PL=10	Yes	Static Link-Table
2	JUSNL	Yes	http://www.jusnl.in/pdf/download/ttc_atc_nov_20_20.pdf	Yes	Static link – pdf file
3	DVC	Yes	https://application.dvc.gov.in/CLD/atcttcmenu.jsp#	Yes	Static Link-Word file
4	OPTCL	Yes	https://www.sldcorissa.org.in/TTC_ATC.aspx	Yes	Static Link-pdf file
5	WBSETCL	Yes	http://www.wbsldc.in/atc-ttc	No (Not updating)	Static Link-Table
6	Sikkim	No	https://power.sikkim.gov.in/atc-and-ttc	No (Not updating)	Static Link-Excel file

All the states having net export schedule should declare their export TTC. In view of the same West Bengal is once again requested to share export TTC. Sikkim are requested to share the ATC/TTC on regular basis. All states are again requested to follow the time line and make necessary changes for being able to calculate TTC on 11 month ahead basis once T-GNA regulation comes into effect.

ITEM NO. C.8: Mock Black start exercises in Eastern Region

As per IEGC Clause 5.8(b), Mock trial runs of the procedure for different subsystems shall be carried out by the Users/CTU/STU at least once every six months under intimation to the RLDC. Accordingly, the Black Start Schedule of different hydro stations for 2022-23 are given below:

Sl No	Name of Hydro Station	Schedule of Mock Black Start	Actual Date of Test	Schedule of Mock Black Start	Actual Date of Test
		Test-1		Test-2	
1	U. Kolab	June-2022	21 st July-2022	Jan-2023	
2	Balimela	July-2022	09 th Sep-2022	Feb-2023	
3	Rengali	June-2022	27- June-2022	Dec-2022	
4	Burla	July-2022	23-June-2022	Jan-2023	
5	U. Indravati	May-2022	25-May-	Feb-2023	

			2022		
6	Maithon	DVC representative submitted that upgradation work is under progress due to issues in the governing system. Detailed timeline would be submitted to ERPC and ERLDC. Detail timeline yet to be received from DVC SLDC		Dec-2022	
7	TLDP-III	Oct-2022		Jan-2023	
8	TLDP-IV	Oct-2022		Feb-2023	
9	Subarnarekha	Sep-2022		Dec-2022	
10	Teesta-V	Oct-2022		Jan-2023	
11	Chuzachen	Oct-2022		Feb-2023	
12	Teesta-III	April-2022	08-April-2022	Dec-2022	
13	Jorethang	Oct-2022		Jan-2023	
14	Tasheding	Oct-2022		Feb-2023	
15	Dikchu	Oct-2022		Dec-2022	
16	Rongnichu	Oct-2022		Jan-2023	

- Note:

*DVC representative submitted that upgradation work is under progress due to issues in the governing system. Detailed timeline would be submitted to ERPC and ERLDC. Detail timeline yet to be received from DVC SLDC.

**Jorethang intimated that Black Start provision is not incorporated in Jorethang HEP System

It is proposed that in case Mock black start is not feasible at Maithon HEP and Jorethang HEP, they may be deleted from this list for tracking.

Further all the generators are requested to express their readiness and provide the tentative date of mock black start exercise for the year 2022-23.

In the 197th OCC meeting OCC advised all the utilities to update the status of Mock Black Start exercise, if any, to ERPC and ERLDC. Jharkhand SLDC has intimated that mock black start exercise of Subarnarekha HEP is scheduled on 13.12.2022. However, no detail has been received from others yet.

Members may update.

ITEM NO. C.9: Requirement of cold spares for ICTs in Eastern Region to meet any exigency.

As per CEA guidelines for availability of spares and inventories for power transmission system (transmission lines & substation/switchyard) assets, adequate cold spare for ICTs has to be maintained at regional as well as state level. Key guidelines for determining spare as per the guidelines are provided below:

- At present PGCIL along with multiple ISTS licensee is operating and maintaining most of the Inter-State Transmission System (ISTS) assets. The transmission lines of above power utilities are spread across more than one states in the country.
- Regional level spare: For regional power utilities (PGCIL & Transmission licensees), the spare at regional level would be required for these assets. These spares should be increased, optimized and limited to double the quantities mentioned for State Level based on transmission line assets in that region in order to avoid unnecessary storage of inventories.
- State level spare: The spares at 'State level' can be maintained at a centralized location which could be conveniently accessed to meet the emergency requirement of various substations/switchyards spread across the State.
- Requirement of state level: ICT and Shunt Reactor: One number single phase/three-phase unit of each rating, as applicable
- Utility for State level spare: If there are five or more substations/switchyards (of same voltage class) of a utility in a State, the 'State Level' spares shall be maintained by the utility.
- Spare at state level by utility having spread in different states: If any utility has five or more substations/switchyards (of same voltage class) spread across different States, spare recommended for 'State Level' shall be maintained for these cluster of substations/switchyards at one or more appropriate locations in any of these States.
- Higher spare for areas having higher probability of damage with natural disaster events: The quantities of spares specified shall be applicable to transmission lines and substations / switchyards in all areas including cyclone / whirlwind / tornado prone areas. However, higher quantity of spares (for some spare items) shall be kept for cyclone / whirlwind / tornado prone areas as indicated in guideline.
- Support between utilities for sharing of spare and associated commercial mechanism: There may be cases, where the extent of damage is so much that specified minimum quantum of spares/inventories may be inadequate in meeting the eventuality. In such cases, support from central power utilities (PGCIL/NTPC/DVC etc.)/transmission licensees/neighboring State utilities may be requested. The financial modalities for providing spares to other utility shall be mutually decided between the utilities.
- Replenishment of Consumed spare: Replenishment of the consumed mandatory spares shall be made at the earliest but in any case, not later than six months from the date of its consumption depending on the criticality of equipment component/material.

With a significant rise in state demands and regional demand along with the number of ICTs, it would be desirable to have an adequate spare to improve reliability and resilience in case of any exigency. Recently, a substantial delay in restoration of damaged ICTs in eastern region has been observed.

Thus, maintaining adequate regional and state level cold spare is important. Table 1-4 provides various details for deciding the requirement of regional and state level cold spare in Eastern region

Table 1: State wise ICTs at various voltages in ER

State Wise ICT	315 MVA 400/220 kV	500 MVA 400/220 kV	315 MVA 400/132 kV	200 MVA 400/132 kV	270 MVA 400/132 kV	250 MVA 400/220 kV	1500 MVA 765/400 kV	255 MVA 765/132 kV	Cold Spare Availability
Bihar	6	27	3	15			5		
Jharkhand	15	6				1	2		
Sikkim	5				1				
Odisha	30	5					8	2	
West Bengal	38	5					4		

Table 2: Utility wise ICTs detail at various voltage level in ER

Utility	315 MVA 400/220 kV	500 MVA 400/220 kV	315 MVA 400/132 kV	200 MVA 400/132 kV	270 MVA 400/132 kV	250 MVA 400/220 kV	1500 MVA 765/400 kV	255 MVA 765/132 kV	Cold Spare Availability
PGCIL	47	27	3				15		
Other ISTS (NKTL, PMJTL, PMTL, DMTCL)		8		2			4		
IPP (Dikchu)					1				
NTPC/NPGC/BRBCL	4			9				2	
WBSETCL/WBPDCL/CESC	22			4					
OPTCL/SEL	11	2							
DVC	10								
BGCL		4							
JUSNL/TPPS		2				1			

Table 3: Utility wise number of substations with ICTs in ER

Utility Substation with ICTs	Number of Substation
PGCIL ERTS 1	15
PGCIL ERST 2	8
PGCIL Odisha	10
WBSETCL	5
WBPDCL	2
OPTCL	5
BGCL	2
DVC	5
JUSNL	1
ISTS (NKTL/DMTCL/PMTL/PMJTL)	7
NTPC	7

Table 4: Spread of substations of various utilities in different states

State	PGCIL ERTS 1	PGCIL ERTS 2	PGCIL Odisha	DVC	WBSETCL	OPTCL	Other ISTS	BGCL	JUSNL	NTPC	Others
Bihar	9						4	2		4	
Jharkhand	6			3			1		1		
Sikkim		1									
Odisha			10			5				2	1
West Bengal		6		2 + 1 (MTPS)	5		2			1	2

In the 192nd OCC meeting, ERLDC representative submitted that as per the CEA guidelines, maintenance of adequate spares at State level as well as at regional level had to be ensured.

ERPC representative submitted that as per the CEA guidelines, the inventory of spares should be digitized and reports of the same should be submitted to CEA on half-yearly basis.

OCC advised all the states to digitize the inventory of spares and submit the report to CEA with a copy to ERPC on half yearly basis.

Further, ERLDC was advised to make a standard format mentioning the date of procurement of ICTs, date of COD of ICTs, declared age of ICTs, remaining life etc and circulate among the concerned utilities.

OCC advised all the concerned utilities to follow the guidelines and submit the report on availability of spares ERPC and ERLDC at the earliest.

Further, Powergrid representative raised a concern regarding diverting the spares from ISTS pool to the states which may pose reliability issues and thereby requested the states to maintain a pool for cold spare ICTs.

MS, ERPC was of the view that the pool of cold spare ICTs may be maintained by a central agency like Powergrid. In case of any requirement of spare ICT on emergency basis by any utility, the same may be provided and the commercial modalities may be decided mutually. Further, to avoid any reliability issues arising out of insufficient spares for the existing ISTS systems, the required optimum number of cold spare ICTs to be maintained by Powergrid may be enhanced which may be put up for approval subsequently.

In the 193rd OCC meeting, Powergrid Odisha representative submitted that 500 MVA and 160 MVA ICT are under procurement which would be placed at Pandiabili and Baripada S/s respectively and cater to the requirement of Odisha. A 315 MVA ICT was recently used in Jeypore S/s. After detailed cost benefit analysis, decision regarding procurement of 315 MVA ICT would be approved.

Powergrid ER-II representative submitted that a 500 MVA ICT is under procurement which would be located at Maithon or Subhashgram. 315 MVA spare ICT (released after augmentation) is available at Durgapur and Malda S/s. one 160 MVA spare ICT is available at Siliguri and one 50MVA ICT was available at Gangtok which was used recently.

Powergrid ER-I representative submitted that regional spare is available at Jamshedpur and Biharsharif S/s. The spare available at Jamshedpur was utilized at Chaibasa. One 315 MVA spare is available at Mujaffarpur S/s. one 160 MVA spare ICT of 220/132 KV is available at Purnea. Further, approval has been taken regarding procurement of one 500 MVA and one 160 MVA spare ICT at Pusauli and Daltonganj respectively.

OPTCL representative submitted that a 315 MVA spare ICT was available at Duburi S/s which was utilized in Meramundali S/s. Procurement of one 500 MVA spare ICT is under progress which would be located at new Duburi S/s. One 500 MVA ICT is available at Meramundali B. Regarding 315 MVA spare ICT, discussions are going on for procuring the same. SLDC DVC representative submitted that one 315 MVA ICT would be replaced by 500 MVA ICT which would be kept as spare and will be located at Ramkanali S/s.

OCC was of the view that a detailed representation highlighting the ICTs under procurement and ICTs available at present would be prepared by ERLDC, based on which decision regarding maintaining pool of spares and procurement of spares would be anticipated.

Present Situation of spare ICTS as per update in 193rd OCC Meeting

Utility	500 MVA 400/220 kV	315 MVA 400/220 kV	160 MVA 220/132 kV
PGCIL ERTS 1	1: Under procurement; will be put at Sasaram	1: Muzaffarpur (released with ICT upgradation) 1: Bihar Sharif 1 : Under Procurement	1: Purnea 1: Daltonganj
PGCIL ERTS 2	1 : Under procurement will be put at either Malda or Shubhasgram	1 : Malda (released with ICT upgradation) 1: Durgapur (released with ICT upgradation)	1 : Silliguri
PGCIL Odisha	1: Under procurement and will be put at Pandiabili	1: Will be procured	1 : Baripada
OPTCL	1: Under procurement	Under discussion with management	Not available
DVC	Not available	1 will be spare in future as per new approved plan	Not available
WBSETCL	No detail	No detail	Not available

- **For 43 numbers of 400/220 kV 500 MVA ICTs:** 3 regional and 1 state spare are under procurement
- **For 94 numbers of 400/220 kV 315 MVA ICTs:** 3 old and 1 new is available and 2 are under procurement
- **For 220/132 kV 160 MVA ICTs:** 4 regional spares are available.

Members are requested to update the status regularly.

ITEM NO. C.10: Availability of ERS in the Eastern Region and update on the status by various utilities including inter-state and intra-state transmission licensees

In line with CEA guidelines for the availability of spares and inventories for power transmission system (transmission lines & substation/switchyard) assets 2020 and the CEA disaster management plan for power sector 2021, adequate ERS is required to be maintained in ER grid for early restoration of transmission line due to any tower collapse. The Eastern region is prone to cyclones, Norwester/Kalbaisakhi localized storms, hilly terrain with landslides, floods, changes in river course, substation flooding, etc. due to which each year tower collapse occurs causing forced outages of transmission lines. This necessitates adequate ERS maintenance by various utilities in the eastern region for early restoration.

Present status available at ERLDC on ERS as collected during cyclone Yaas in 2021 is provided in the attached table. All transmission utilities are requested to kindly update the ERS availability and any ERS which are already engaged.

Status Update by: PGCIL ERTS 1, PGCIL ERST 2, PGCIL Odisha, WBSETCL and OPTCL (if any ERS is already engaged then same may be put as remarks)

Utility to provide details of available ERS in the attached format:

- State-level: BSPTCL, BGCL, DVC, JUSNL, Sikkim power department (SPD)
- ISTS: Indigrid (OGPTL, PKTCL, ENICL), PGCIL Subsidiaries (CBPTCL, PMTL, PMJTL), Powerlink Transmission limited (PTL), DMTCL, Adani transmission (ATL, NKTL), TPTL

In the 192nd OCC meeting, TPTL representative submitted that they would provide the details by the end of June 2022.

DVC representative submitted that procurement of 7 nos. (Combination of suspension and tension) of ERS is under progress. Further, pile and structures (2 nos.) at Putki and Maithon are available as immediate remedial measures up to 220 KV level.

West Bengal representative submitted that 10 nos. of ERS towers which can be used at all levels are available out of which 6 nos. have been used. Of the remaining, 3 nos. are tension towers and 1 is suspension tower.

JUSNL representative submitted that 8 nos. of ERS are available which could be used for up to 220 KV levels.

Bihar representative submitted that 36 nos. of ERS (for 220 KV and 132 KV level) are available and all are engaged at present.

The details have been received from OPTCL, PGCIL ERTS-1, ATL, PGCIL Odisha, PGCIL ERTS-2, PTL, ENICL, OGPTL, PKTCL. The details are awaited from WBSETCL, TPTL, BSPTCL, JUSNL and Sikkim Power Department. The utilities are requested to share the details at the earliest.

Present status available at ERLDC on ERS as collected during July 2022 is provided in the attached table.

SI	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
1	OPTCL	400 kV	14	Mancheswar Grid - 4 nos. (Hitech)	Can be used for both suspension and Tension
				Mancheswar store - 8 nos. (Hitech)	
				Mancheswar store - 2 nos. (Lindsey)	
			18 (Newly procured)	Mancheswar store - 18 nos. (Hitech)	

SI	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
		220 kV	42	Budhipadar - 14 nos. (Lindsey)	
				Mancheswar grid – 14 Nos. (Lindsey)	
				Chatrapur - 14 nos. (Lindsey)	
2	PGCIL	765 kV -24 sets	24 Sets	GAYA	15 Suspension & 9 Tension tower
	ERTS 1	400 KV -30 sets	30 Sets	Jamshedpur, Purnea, Lakhisarai	Total 20 nos. Suspension & 10 nos. Tension ERS towers
3	Adani transmission limited (ATL)	400 KV	1 set (12 Column). Nos of ERS towers shall depend on line configuration, type of tower and extension of towers. Approximate 6 suspension towers/ set for 400kV D/C twin conductor.	Central India (Koradi, Maharashtra)- 48 Hours	Modular aluminum guyed towers- Suspension tower
4	PGCIL (Odisha)	400 KV ERS - 3	3	Rourkela	Suspension - 2 & Tension-1
		765 KV ERS - 24	24	Rengali	Suspension - 15 & Tension-9
5	PGCIL ERTS 2	400 KV	1 Set (consisting of 10 towers) - 400 KV Voltage	Durgapur	7 Set-Suspension 03 Set-Tension

SI	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
			level		
6	WBSETCL	400, 220, 132 kV	05+05set (can be used with 400/220/132 kV level) 6 used for Durgapur - asansol line diversion. 4 available	at Arambagh & Gokarno	Can be used for both suspension and Tension
7	TPTL		MoU with PGCIL Tie up with Supreme Industry in progress	-	-
8	CBPTCL		No ERS	PTC does not own any ERS, however, in case of any such requirement for deployment of ERS, CPTC has an existing agreement with POWERGRID for deployment of ERS.	-
9	PMTL	-	No ERS	-	-
10	PMJTL	765 kV	NO ERS	-	-
11	PTL	400 kV	07 towers set ERS structures suitable for Twin Moose Configuration 400 or 220 kV.	Siliguri (W.B.)	Lindsey Manufacturing Company Ltd USA Model 600

SI	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
			07 towers set ERS structures suitable for Twin Moose Configuration 400 or 220 kV.	Muzaffarpur (Bihar)ER1	
12	Indigrid (ENICL, OGPTL & PKTCL)	400 KV & 765 KV Line	765 KV- 6 Sets / 400 KV- 8 Sets	Siliguri, WB.	For 765 KV- 4 Suspension & 2 Tension. For 400 KV- 6 Suspension & 2 Tension.
13	DMTCL	400 kV Lines	Arrangement of ERS with M/s Supreme Engineering at Kolkata.	Can be Dispatched in 2–3-weeks periods	-
14	BSPTCL	220 kV & 132 kV	38 ERS which can be used for 220 and 132 kV	18 Towers in use for 132 kV Kishanganj-Barsoi ckt 4 towers for 220 kv BTPS-Hazipur ckt 4 towers for 220 kV Bodhgaya- Chandauti Purnea : 1 Dehri on sone: 2 Sultanganj: 2 Fatuah: 2 Muzaffarpur : 4	Can be used for both suspension and Tension
15	BGCL	-	No ERS	No ERS	-

SI	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
16	JUSNL	220 kV	Total 8 ERS	Hatia: 3 Jamshedpur: 2 Dumka: 3	Details awaited
17	DVC	400 kV and 220 kV	400 kV: 7 (under procurement) 220 kV: 2 set Pylon structure	400 kV: Under procurement 220 kV: 1 at putki and 1 at Maithon	-
18	Sikkim Power Department		Details awaited	Details awaited	Details awaited

In the 193rd OCC meeting, TPTL representative submitted that they do not have any ERS towers of their own. In this regard, a MoU with PGCIL is there.

WBSETCL representative submitted that 10 nos. of ERS towers are available which could be used at all the voltage levels. Out of 10 nos., 6 nos. are used for Durgapur-Asansol line and 4 nos. are available. Procurement of additional 6 nos. of ERS towers (which could be used both under suspension and tension) is under planning stage.

Bihar representative submitted the status of ERS towers which is mentioned below.

Location	Status	Usage	Type	Quantity
Kishanganj-Barsoi Line	engaged	220/132 KV	Suspension/Tension	18
BTPS-Hajipur Line	engaged	220/132 KV	Suspension/Tension	4
Bodh Gaya-Chandauti	to be engaged	220/132 KV	Suspension/Tension	4
Purnea	Spare	220/132 KV	Suspension/Tension	1
Dehri	Spare	220/132 KV	Suspension/Tension	2
Fatuha	Spare	220/132 KV	Suspension/Tension	3
Mujaffarpur	Spare	220/132 KV	Suspension/Tension	4
Sultanganj	Spare	220/132 KV	Suspension/Tension	2
Total				38

OCC was of the view that many lines of BGCL and other new sub-stations like Mokama, Hajipur, etc. in Bihar fall under the coverage of river corridor and advised Bihar to keep provisions of ERS towers for those lines.

Members may update.

ITEM NO. C.11: List of lines of Eastern Region violating N-1 security criteria.

The list of such lines for which necessary planning needs to be done to make the system N-1 secure are given below:

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
Transmission Constraint in Odisha Network				
1	i. 220 kV Budhipadar-Lapanga D/C, ii. 220 kV Budhipadar Vedanta D/C iii. 220 kV Rourkela-Tarkera D/C	SPS available only for 220 kV Rourkela-Tarkera D/C. However, even with SPS N-1 criteria is not satisfied for all the conditions. Action Required:- Load trimming scheme needs to be planned	1. Reconductoring of 220 kV Rourkela-Tarkera D/C with HTLS. 2. 220 kV Rourkela-Tarkera second D/C 3. Shifting of Vedanta from 220 kV to 400 kV	OPTCL to provide a target date for Long term measures
2	i. 220 kV Lapanga-Katapalli D/C , ii. 220 kV Katapali-New Bargarh-Sadepalli (New Bolangir) S/C iii. 220 kV Katapali-Bolangir (PG)- S/C	No SPS Available. Action Required:- SPS/Load trimming scheme needs to be planned	Odisha to share long-term remedial action to make the system N-1 secure.	OPTCL to provide a target date for Long term measures
Transmission Constraint in West Bengal Network				
3	i. 220 kV Waria-Bidhan Nagar D/C ii. 220 kV Waria-Mejia D/C	Opening of 220 kV Waria-Bidhan Nagar D/C as and when required	400/220kV, 315MVA (3 rd) ICT at Bidhannagar	Target Date 2022-23. WBSETCL may update the present Status
Transmission Constraint in DVC Network				

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
4	i. 220 kV DSTPS-Waria D/C*	No SPS is Available. Action Required:- SOP/SPS/Load trimming scheme needs to be planned for the time being	i. 220 kV Connectivity at 400 kV Mejia-B ii. LILO of 220 kV Mejia-A and Barjora at Mejia-B	DVC may update the target date
5	ii. 220 kV Maithon-Dhanbad D/C, iii. 220 kV Maithon-Kalyanesh wari D/C	No SPS is Available. Action Required:- SOP/SPS/Load trimming scheme needs to be planned for the time being	iii. 220 kV Connectivity at 400 kV Mejia-B iv. 220 kV Connectivity at 400 kV RTPS	DVC may update the target date
* The N-1 violation of 220 kV DSTPS- Waria D/C or DSTPS ICT 1&2 may result in large-scale disturbance, impacting an area between Durgapur and Maithon. To avoid any such mishap DVC needs to plan and implement an SPS on an urgent basis. Further, the long term measure also needs to be implemented in time bound manner.				
Transmission Constraint in Jharkhand Network				
6	220 kV Maithon Dumka D/C	No SPS Available. Action Required:- SPS/Load trimming scheme needs to be planned	i. LILO of 1st circuit of 220kV Dumka – Govindpur D/c line at Dhanbad	Target Date 2023. Jharkhand may update the target date
Transmission Constraint in West Bengal Network				
6	i. 220 kV Rajarhat-Newtown AA3 D/C, ii. 220 kV Subhasgram-EMSS D/C	SPS is Available for both the Ckts	1. 220 kV Rajarhat-Newtown AA3 D/C line with HTLS. 2. No Strengthening planned for 220 kV Subhasgram-EMSS D/C	1. Target Date November 2022 for recondutoring WBSETCL may update the present Status
7	i. 220 kV Subhasgram (PG) – Subhasgram (WB) D/C ii. 220 kV Subhasgram (WB)-Lakshmikantp	SPS Available for 220 kV Subhasgram (PG) – Subhasgram (WB) D/C	i. 220 kV Subshagram – Baruipur D/C ii. 400/132 kV Substation at Lakshmikantpur.	i. Line antitheft charged from Subhasgram end ii. Lakshmikantpur tareget date is December 2024 WBSETCL may update the present Status

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
	ur D/C			
Transmission Constraint in Bihar Network				
8.	220 kV Darbhanga-Darbhang(BH) D/C	No SPS Available. Action Required:- SPS/Load trimming scheme needs to be planned	Bihar to share long-term remedial action to make the system N-1 secure.	Bihar to provide a target date for Long term measures
9.	220 kV Muzzafarpur-Hazipur D/C	No SPS Available. Action Required:- SPS/Load trimming scheme needs to be planned	1. 220 kV Muzzafarpur-Amnour D/C	Bihar to provide a target date for Long term measures
10.	220 kV Gaya Bodhgaya D/C	No SPS Available. Action Required:- SPS/Load trimming scheme needs to be planned	1. 220 kV Gaya Bodhgaya Second D/C	Bihar to provide a target date for Long term measures

In the 193rd OCC meeting, ERLDC representative submitted that outage of DSTPC ICTs or DSTPS Waria D/C line may create a large scale disturbance.

DVC representative submitted that the contracts for connectivity between MTPS 220 KV to 400 KV and RTPS connectivity have already been awarded and the work is expected to be completed by December 2023. The 400 KV bus connectivity would extend some relief in case of evacuation problem from 220 KV bus due to MTPS generation.

Under long-term measures, programs for augmentation of DSTPS ICT and DSTPS-DTPS HTLS is under progress. Necessary approval from ERPC and CTU has already been taken in this regard.

Moreover, Parulia (PG)-Parulia (DVC) line has already been given to Powergrid for HTLS connectivity. After the HTLS connectivity, possibilities of switching-off of DSTPS ICT may be explored. Further, possibilities of bus-splitting at MTPS may also be worked out.

ERLDC representative requested DVC to maintain some minimum generation in Mejia. DVC representative submitted that Mejia unit-6 would be synchronized by 21st July 2022.

ERLDC representative was of the view that as per the study undergone by them, closing of Bidhannagar-Waria circuit would not cater to the generation loss issues and advised DVC to explore the possibilities of bus splitting and connectivity to 400 KV of MTPS and RTPS.

Members may update.

ITEM NO. C.12: ICT Constraints violating N-1 security criteria.

The list of ICTs which are not N-1 complaint are given below:

Sl. No	Name of ICT	Short Term Measures	Long term Measures	The target date for long term measures
ICT Constraint in West Bengal Network				
1	i. 400/220 kV 2 X 315 MVA ICTs at Gokarna & ii. 400/220 kV Sagardighi 1 X 315 MVA ICTs	SPS Available for Gokerno ICTs Action Required:- Load trimming scheme needs to be planned for Sagardighi	i. 3 rd ICT at Gokerno	Target Date Dec-22 WBSETCL may update the present Status
2	i. 400/220 kV ICT-1 & 2 at Bidhannagar	No SPS Available Action Required:- SPS needs to be planned	i. 400/220kV 315MVA (3rd) ICT at Bidhannagar	Target Date 2022-23 WBSETCL may update the present Status
ICT Constraint in ISTS Network				
3	i. 400/220 kV Ranchi 2 X 315 MVA ICTs	SPS Available	i. 3 rd 500 MVA ICT at Ranchi	POWERGRID may update the target date
ICT Constraint in DVC Network				
4	i. 400/220 kV Bokaro A 2 X 315 MVA ICTs	No SPS Available Action Required:- SPS needs to be planned	i. Upgradation with 500 MVA ICTs	DVC may update target date
5	i.400/220 kV ICT-1 & 2 at DSTPS *	No SPS Available Action Required:- SPS needs to be planned	i. Upgradation with 500 MVA ICTs	DVC may update target date
ICT Constraint in Odisha Network				

Sl. No	Name of ICT	Short Term Measures	Long term Measures	The target date for long term measures
6	i. 400/220 kV New Duburi 2 X 315 MVA ICTs	No SPS Available Action Required: - SPS needs to be planned	i) 3 rd ICT at New Duburi	Odisha may update the target date

In the 193rd OCC meeting, ERLDC representative submitted that outage of DSTPC ICTs or DSTPS Waria D/C line may create a large-scale disturbance.

DVC representative submitted that under long-term measures, programs for augmentation of DSTPS ICT is under progress. Necessary approval from ERPC and CTU has already been taken in this regard.

Moreover, Parulia (PG)-Parulia (DVC) line has already been given to Powergrid for HTLS connectivity. After the HTLS connectivity, possibilities of switching-off of DSTPS ICT may be explored.

Members may update.

PART D: OPERATIONAL PLANNING

ITEM NO. D.1: Anticipated power supply position during May 2023.

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of May 2023 were prepared by ERPC Secretariat (**Annexure D.1**) on the basis of LGBR for 2023-24 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc.

Members may update.

ITEM NO. D.2: Major Generating Units/Transmission Element outages/shutdown in ER Grid (as on 09.05.2023)

a) Thermal Generating Stations outage report:

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	KOLAGHAT	WEST BENGAL	WBPDCL	4	210	Economiser tube leakage	09-May-2023
2	MEJIA TPS	DVC	DVC	2	210	Boiler Tube Leakage	08-May-2023
3	HEL HIRANMAYEE	WEST BENGAL	HEL	2	150	Generator protection operated (Turbine blade broken)	06-Apr-2023
4	NABINAGAR (BRBCL)	BIHAR	NTPC	1	250	Wagon tippler problem (unable to handle more than 3 rakes) and Boiler licence needs renewal which is going to expire shortly	09-May-2023
5	BARH	BIHAR	NTPC	1	660	Boiler Tube Leakage	08-May-2023
6	KHSTPP	BIHAR	NTPC	3	210	Boiler Tube Leakage	07-May-2023
7	FSTPP	WEST BENGAL	NTPC	2	200	Spark in Generator bus gear	06-May-2023
8	ADHUNIK	JHARKHAND	APNRL	2	270	Generator stator earth fault (Stator winding flash over)	12-Mar-2023

All Generating stations are requested to update expected restoration time and reason outage to ERLDC/ERPC on weekly basis in case of any change at their end.

b) Major Generating stations Out on Reserve Shutdown due to low system demand:

NIL.

c) Hydro Unit Outage Report:

S. NO	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	BALIMELA HPS	ODISHA	OHPC	3	60	The unit taken out under R & M for 18 months.	08-Jul-2022
2	BALIMELA HPS	ODISHA	OHPC	4	60	The unit taken out under R & M for 18 months.	08-Jul-2022

3	INDRAVATI	ODISHA	OHPC	4	150	Capital maintenance for 6 Months, New stator change by OEM, Turbine OH	09-Dec-2022
4	U. KOLAB	ODISHA	OHPC	2	80	Stator Earth Fault (Winding damage)	29-Mar-2023

d) Long outage report of transmission lines (As on 09.05.2023):

Transmission Element / ICT	Outage From	Reasons for Outage
400 KV IBEUL JHARSUGUDA D/C	29.04.2018	TOWER COLLAPSE AT LOC 44,45
220/132 KV 100 MVA ICT II AT LALMATIA	22.01.2019	FAILURE OF HV SIDE BREAKER
220 KV PANDIABILI - SAMANGARA D/C	03.05.2019	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. PRESENTLY CHARGED FROM PANDIABILLI END (LOC 156) TO LOC 58
220/132 KV 100 MVA ICT 3 AT CHANDIL	30.04.2020	DUE TO FIRE HAZARD ICT DAMAGED AND BURNT
400KV/220KV 315 MVA ICT 4 AT JEERAT	09.04.2021	DUE TO FIRE HAZARD ICT DAMAGED AND BURNT. NEW TRANSFORMER PROCUREMENT UNDER PIPELINE AND SHALL BE REPLACED IN THE NEAR FUTURE.
220KV-FSTPP-LALMATIA- 1	21.04.2021	THREE TOWER COLLAPSED NEAR LALMATIA
220KV-MUZAFFARPUR(PG)-GORAUL(BH)-1	11.06.2022	TO RECTIFY THE CVT VOLTAGE MISSING ISSUE
220KV-WARIA-BIDHANNAGAR-1&2	08.06.2022	TO CONTROL OVERLOADING OF 220 KV WARIA-DSTPS (ANDAL) D/C LINE
400KV/220KV 315 MVA ICT 1 AT PATRATU	01.08.2022	ICT TRIPPED ON A FEW OCCASIONS DUE TO OPERATION OF BUCHOLZ RELAY LATER DGA VIOLATION FOUND, INTERNAL FAULT IN TRANSFORMER TO BE RECTIFIED
400KV/220KV 315 MVA ICT 2 AT PATRATU	27.09.2022	ICT TRIPPED ON A FEW OCCASIONS DUE TO OPERATION OF BUCHOLZ RELAY LATER DGA VIOLATION FOUND, INTERNAL FAULT IN TRANSFORMER TO BE RECTIFIED
220KV/132KV 160 MVA ICT 1 AT MALDA	04.01.2023	FOR 132 KV GIS COMMISSIONING WORK (GIB ERECTION OF ICT-I)
400KV-CHANDWA-LATEHAR(JUSNL)-1	27.01.2023	TRIPPED DUE TO INTERNAL FLASHOVER OF 400KV MAIN BAY OF LATEHAR-1 AT CHANDWA
400KV/220KV 315 MVA ICT 2 AT MEJIA-B	14.03.2023	ANNUAL MAINTENANCE WORK
400KV-BINAGURI-BONGAIGAON-1	08.04.2023	RECONDUCTORING WORKS WITH HTLS CONDUCTOR
400KV/220KV 315 MVA ICT 3 AT ROURKELA	09.04.2023	BUCHHOLZ RELAY OPERATED
132KV-BARHI-RAJGIR-1	25.04.2023	DISMANTLING OF TOWER NO. 227, 228, AND 229 CROSSING THE PREMISES OF MAHABODHI CULTURAL CENTRE ALONG WITH DESTSTRINGING OF CONDUCTOR OF BOTH CIRCUITS AND EARTH WIRE BETWEEN TENSION TOWER NO. 218-237 IN SAME LINE.
132KV-NALANDA-BARHI(DVC)-1	25.04.2023	
220KV-PATNA-KHAGAUL-1	27.04.2023	DE-STRINGING OF EXISTING CONDUCTOR AND

		RESTRINGING OF CONDUCTOR AND ERECTION WORK
400KV/220KV 315 MVA ICT 4 AT RANGPO	02.05.2023	SF6 LEAKAGE RECTIFICATION
220KV-RANCHI-MTPS (DVC)-1	08.05.2023	ICT-3 BAY EXTENSION WORKS (UNDER CONSTRUCTION ERSS XXVI) AT RANCHI
220KV-CHUKHA-BIRPARA-1	09.05.2023	B-PH JUMPER SNAPPED UNDER BHUTAN JURISDICTION

Transmission licensees/ Utilities are requested to update expected restoration date & work progress regarding restoration regularly to ERLDC/ERPC on monthly basis by 5th of each month so that status of restoration can be reviewed in OCC. Utilities are also requested to update outage of any elements within their substation premises like isolator/breaker to ERLDC/ERPC regularly. (Reported as per Clause 5.2(e) of IEGC)

Members may note.

ITEM NO. D.3: Commissioning of new units and transmission elements in Eastern Grid in the month of April-2023

The details of new units/transmission elements commissioned in the month of April - 2023 based on the inputs received from beneficiaries:

LIST OF NEW ELEMENTS CHARGED DURING APRIL, 2023							
GENERATING UNITS							
SL. NO.	Location	OWNER/UNIT NAME	Unit No/Source	Capacity added (MW)	Total/Installed Capacity (MW)	DATE	Remarks
NIL							
ICTs/ GTs / STs							
SL. NO.	Agency/ Owner	SUB-STATION	ICT NO	Voltage Level (kV)	CAPACITY (MVA)	DATE	Remarks
NIL							
TRANSMISSION LINES							
SL. NO.	Agency/ Owner	LINE NAME	Length (KM)	Conductor Type	DATE	Remarks	
1	BSPTCL	220 kV Muzzafarpur (PG) - Amnour (BSPTCL) Line 2 as anti-theft measure from Muzzafarpur end	65	ACSR Zebra	11-04-2023	Format IV for both circuit was issued on 06-04-2023. Line was charged for the first time on 11-04-2023 on 18:03 Hrs. 220 kV Muzzafarpur (PG) - Amnour (BSPTCL) Line 1 is yet to be charged, only bay is charged from Muzzafarpur end.	
2	Sikkim	132 kV Ranpo (PG) - Samardong (EPD, Sikkim) Line 1	2.84	Twin Moose ACSR & 220 kV XLPE	13-04-2023	Line was charged along with associated bays at Samardong end on 13-04-2023 at 18:04 Hrs. Line was previously charged as anti-theft from Rangpo end on 30-03-2023. Format IV was issued on 30-03-2023.	
3	Sikkim	132 kV Ranpo (PG) - Samardong (EPD, Sikkim) Line 2	2.84	Twin Moose ACSR & 220 kV XLPE	13-04-2023	Line was charged along with associated bays at Samardong end on 13-04-2023 at 18:13 Hrs. Line was previously charged as anti-theft from Rangpo end on 30-03-2023. Format IV was	

						issued on 30-03-2023.
4	Indian Railways (DFCCIL)	220 kV Pusauli (PG) - Durgauti Line 1	17.29	ACSR Zebra	11-04-2023	Line was charged on 11-04-2023 at 19:31 Hrs. Format IV was issued on 08-04-2023.
5	Indian Railways (DFCCIL)	220 kV Pusauli (PG) - Durgauti Line 2	17.29	ACSR Zebra	11-04-2023	Line was charged on 11-04-2023 at 19:32 Hrs. Format IV was issued on 08-04-2023.
LILO/RE-ARRANGEMENT OF TRANSMISSION LINES						
SL. NO.	Agency/ Owner	Line Name/LILO at	Length (KM)	Conductor Type	DATE	Remarks
NIL						
BUS/LINE REACTORS						
SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks
NIL						
HVDC /AC Filter bank / FACTS DEVICE associated System						
SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks
NIL						
BAYS						
SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks
NIL						

Odisha:

Elements charged for first time in April-2023			
Sl No.	Name of the element charged first time	Date	Time
1	Synchronization of 2MW GEDCOL Solar PV Plant having 33kV connectivity at 220/132/33kV GSS, Bolangir New for 2.0MW Soalr PV Plant.	17/4/2023	13:20HRS
2	220KV LILO line from Loc No-277 of existing 220KV New Duburi-Balasore Line up to Gantry of 220/132/33KV Grid S/S, Dhamra.	13/4/2023	19:21HRS
3	Synchronization of 3.64MW Solar PV Plant at 11kV level in 132/11kV switchyard of M/S Shree Cement Limited connected through 132kV OPTCL Khuntuni-Shree cement feeder.	15/4/2023	15:13HRS
4	220/33kV GSS, Kantabada having LILO connectivity from loc no-453 & 455 of 220kV Chandaka-Mendhasal Ckt-III along with 02 nos of 220/33kV 63MVA Power Transformers.	16/4/2023	20:45HRS
5	Synchronization of 30MW Thermal Unit of M/S Jagannath Steel & Power Ltd. Keonjhar with OPTCL system.	20/4/2023	14:22HRS
6	33kV Solar Bay extension at 132/33kV GSS, Baripada	28/4/2023	17:16HRS
7	132/33kV GSS, Boriguma having LILO connectivity from loc no-98A of 132kV Jayanagar-Tentulikhunti Ckt-II (132kV Jayanagar-Nabarangpur Line)	24/4/2023	20:47HRS
8	220KV Switchyard (02nos of 220kV fdr bay, 01 no of 220kV Transformer bay, 01 no of 220kV Bus-Coupler bay, 220/132kV 160MVA Auto TRF-II) at 220/132/33kV GSS, Dhamra having LILO connectivity with 220KV New Duburi-Balasore Line	24/4/2023	17:06HRS
9	132/33kV 40MVA Power Transformer No-II at Rourkela	27/4/2023	13:36HRS
10	132kV Brajarajnagar-Lakhanpur DC Line & 132/33kV Lakhanpur GSS (05nos of 132kV bay, 08nos of 33kV bays, 132/33kV 20MVA Power TRF-I & II)	29/4/2023	20:08HRS

Bihar:

132KV SERAKOL-BARUIPUR D/C first time charged as an anti-theft measure from SERAKOL end on 01.04.2023 at 11:43 hrs, having a length of 16.067 kM (per ckt) with ACCC Casablanca conductor (HTLS).

Members may note.

ITEM NO. D.4: UFR operation during the month of April 2023.

Frequency profile for the month as follows:

Month	Max	Min	Less IEGC Band (%)	Within IEGC Band (%)	More IEGC Band (%)
	(Date/Time)	(Date/Time)			
April, 2023	50.33 Hz on 23.04.2023 at 08:59 Hrs.	49.49 Hz on 15.04.2023 at 22:09 Hrs.	10.5	67.9	21.6

Hence, no report of operation of UFR has been received from any of the constituents.

Members may note.

Annexure B.1

Frequency Response performance Measuring framework:

1. Step-1 Event Declaration and data submission format sharing – RLDC:

As per the CERC defined criteria, NLDC and RLDC will declare a disturbance event for which FRC calculation is required. After an event is detected, RLDC will share the event details as well as a data submission format. In the format the time and frequency curve will be prefilled by RLDC using PMU data:

		Only Thermal			
Time	Delta Time with respect to disturbance initiation (Not to be changed)	Power O/P	RGMO out put	Pressure	Delta Pr
13:20:32	-160	50.2341			
13:20:33	-159	50.23437			
13:20:34	-158	50.2344			
13:20:35	-157	50.23315			
13:20:36	-156				
13:20:37	-155				
13:20:38	-154				
13:20:39	-153				
13:20:40	-152				
13:20:41	-151	50.22598			
13:20:42	-150	50.22342			
13:20:43	-149	50.22048			
13:20:44	-148	50.21814			
13:20:45	-147	50.21553			
13:20:46	-146	50.21296			
13:20:47	-145	50.21068			
13:20:48	-144	50.20882			
13:20:49	-143	50.20675			

Time	Gen	Frequency	Ideal response
0	0	50.17519	
20	0	50.05278	
30	0	50.09071	
40	0	50.10467	
50	0	50.11295	
60	0	50.12888	
90	0	50.15694	
120	0	50.19968	
200	0	50.24145	
300	0	50.28675	

2. Step-2 Submission of Active power, RGMO controller output in MW, Pressure influence (MW) and pressure data- Generators:

		Only Thermal			
Time	Delta Time with respect to disturbance initiation (Not to be changed)	Power O/P	RGMO out put	Pressure	Delta Pr
13:20:32	-160	50.2341			
13:20:33	-159	50.23437			
13:20:34	-158	50.2344			
13:20:35	-157	50.23315			
13:20:36	-156				
13:20:37	-155				
13:20:38	-154				
13:20:39	-153				
13:20:40	-152				
13:20:41	-151	50.22598			
13:20:42	-150	50.22342			
13:20:43	-149	50.22048			
13:20:44	-148	50.21814			
13:20:45	-147	50.21553			
13:20:46	-146	50.21296			
13:20:47	-145	50.21068			
13:20:48	-144	50.20882			
13:20:49	-143	50.20675			

Time	Gen	Frequency	Ideal response
0	0	50.17519	
20	0	50.05278	
30	0	50.09071	
40	0	50.10467	
50	0	50.11295	
60	0	50.12888	
90	0	50.15694	
120	0	50.19968	
200	0	50.24145	
300	0	50.28675	

3. Ranking method- RLDC-

Ranking is based on two factors- Peak Response and sustainability

- Response peak is checked based on the peak response observed during 20 to 60 sec

- b. Sustainability- Average of Response sustained during 90 to 200 sec
- c. Composite ranking is calculated by giving weightage 2 to response and 1 to sustainability

Time	Gen	Frequency	Ideal response	Actual response based on Pmax	Actual response based on Pact	% response considering limit based on Pmax	% response considering limit based on Pact	Sustainability												
0	139.84	50.17519						113.2723112												
20	147.26	50.05278	5	3.71	5.306064073	74.2	106.1212815	0.936868687												
30	147.76	50.09071	5	3.96	5.663615561	79.2	113.2723112	1												
40	146.77	50.10467	5	3.465	4.955663616	69.3	99.11327231	0.875												
50	146.02	50.11295	5	3.09	4.419336384	61.8	88.38672769	0.78030303												
60	145.53	50.12888	5	2.845	4.068935927	56.9	81.37871854	0.718434343												
90	130.68	50.15694	5	-4.58	-6.550343249	-91.6	-131.006865	0												
120	125.48	50.19968	5	-7.18	-10.26887872	-143.6	-205.3775744	0												
200	140.08	50.24145	5	0.12	0.171624714	2.4	3.432494279	0.03030303												
300	137.36	50.28675	5	-1.24	-1.773455378	-24.8	-35.46910755													

Submitted by Plant		
Response Index	113.27	
Sustainability Index	1.01	
Complex Performance	75.85	

0.010101

Annexure B.3

Sl. No.	LINE NAME	TRIP DATE	TRIP TIME	RESTORATION DATE	RESTORATION TIME	Relay Indication LOCAL END	Relay Indication REMOTE END	Reason	Fault Clearance time in msec	Remarks
1	400 KV BINAGURI-MALBASE-1	01-04-2023	05:24	01-04-2023	06:22	Binaguri: Y_N, 43.52 km, 5.672 kA		Y-Earth	1200	Line tripped from Binaguri after 100 msec and A/r attempt taken after 1 sec which was unsuccessful. However, fault was not cleared from Malbase till 1.2 seconds.
2	400KV BINAGURI-TALA-1	02-04-2023	22:43	02-04-2023	23:11	Binaguri : R_N, 3.33 kA, A/r Successful	Tala: R_N, 18.2 km	R-Earth	100	A/r successful from Binaguri. Three phase tripping at Tala.
3	400KV BINAGURI-TALA-1	16-04-2023	15:15	16-04-2023	15:55	Binaguri: DT received	Tala: Didn't trip	No fault	NA	DT received at Binaguri
4	400KV BINAGURI-TALA-1	19-04-2023	20:29	19-04-2023	21:12	Binaguri : Y_B, Iy: 4.39 kA, Ib: 4.14 kA, DT received		Y-B-Earth	230	Phase to phase fault which was in Zone-2 from Binaguri. After 230 msec, DT received at Binaguri
5	400KV BINAGURI-TALA-1	19-04-2023	21:35	19-04-2023	22:40	Binaguri: B_N, 126 km, 2 kA	Tala: B_N, 60.8 km	B-Earth	2300	Resistive fault.
6	400KV BINAGURI-TALA-4	21-04-2023	21:29	21-04-2023	22:17	Binaguri: B_N, Zone-2, 122.8 km, 3.3 kA		B-Earth	500	Tripped in Zone-2 time from Binaguri. A/r successful from Tala
7	220KV BIRPARA-MALBASE-1	21-04-2023	21:42	21-04-2023	22:46	Birpara: Y_N	Malbase: Y_N, Zone-1, 14.9 km, 2.49 kA	Y-Earth	100	A/r couldn't be ascertained from PMU
8	400KV BINAGURI-TALA-1	21-04-2023	22:06	21-04-2023	22:33	Binaguri: B_N		B-Earth	2200	Resistive fault
9	400KV BINAGURI-TALA-4	22-04-2023	04:40	24-04-2023	21:07		Tala:R_N, 120.6 km, 3.58 kA	R-Earth	500	Tripped in Zone-2 time from Binaguri.
10	400KV BINAGURI-TALA-1	22-04-2023	06:03	22-04-2023	08:32	Binaguri:B_N, 1.1 kA		B-Earth	2600	Resistive fault
11	220KV CHUKHA-BIRPARA-1	29-04-2023	01:53	29-04-2023	03:39		Birpara: R_Y, 42 km, Ir: 2.708 kA, Iy: 2.335 kA	R-Y	100	Phase to phase fault
12	220KV CHUKHA-BIRPARA-2	29-04-2023	01:53	29-04-2023	03:40		Birpara: R_Y, Zone-1, 42.32 km, Ir: 2.773 kA, Iy: 2.329 kA	R-Y	100	Phase to phase fault
13	400KV BINAGURI-TALA-2	29-04-2023	01:59	29-04-2023	02:59	Binaguri:R_N, Zone-1, 125.2 km, 2.8 kA		R-Earth	100	Three phase tripping for single phase fault
14	400KV ALIPURDUAR (PG)-JIGMELLING-2	29-04-2023	03:53	29-04-2023	04:30	Alipurduar: R_N, Zone-1, 60.5 km, 6.7 kA	Jimelling: R_N, Zone-1, 125.4 km, 1.59 kA	R-Earth	100	As per PMU, A/r failed after 1 second.
15	220KV CHUKHA-BIRPARA-1	29-04-2023	04:10				Birpara: R_B, 55.32 km, Ir: 2.372 kA, Ib: 2.774 kA	R-B	100	Phase to phase fault
16	220KV CHUKHA-BIRPARA-2	29-04-2023	04:10	29-04-2023	09:56	Chukha: R_B, Zone-1, 54.2 km, Ir= 2.447 kA, Ib= 2.739 kA	Birpara: R_B, Zone-1, 53.98 km, Ir= 2.482 kA, Ib= 2.758 kA	R-B	100	Phase to phase fault
17	400KV ALIPURDUAR (PG)-PUNASANGCHUN-2	30-04-2023	00:28	30-04-2023	01:41	Alipurduar: R_N, 83.7 km, 3.34 kA, A/r successful	Punasangchu: R_N, 160 km, 1.25 kA	R-Earth	100	A/r successful from Alipurduar only
18	400KV BINAGURI-MALBASE-3	30-04-2023	03:04	30-04-2023	03:37	Binaguri: R_N, 113 km, 7.962 kA, A/r successful	Malbase: R_N, 166 km, 1.908 kA	R-Earth	100	A/r successful from Binaguri only

Annexure B.4

1. Important Load Relief Scheme (LRS) implemented in West Bengal System

Load Relief scheme (LRS) based SPS implemented in West Bengal System (WB SLDC should share the information to real time when these SPS operate as these SPS impacts ISTS system)

SL NO.	SUBSTATION	THE DETAIL OF THE LRS	CONDITION AT WHICH IT WILL OPERATE	REMARKS	TENTATIVE LRS QUANTUM AS MEASURED IN SUMMER PEAK REFERENCE(IN MW/A)
1	220 kV NEWTOWN AA3	220 kV B/C WILL TRIP AFTER A TIME DELAY OF 3 SEC	IF LOAD CURRENT OF ANY OF THE 220 kV RAJARHAT CKT I & II EXCEEDS 584 A; B/C CAN BE RESET AFTER LOAD CURRENT COMES DOWN TO 554 A	SPS IS ON	
2	400/220/132 kV JEERAT	132 kV BONGA D/C, ASHOKENAGAR D/C, MAHISPOTA D/C, BARASAT D/C & 220 kV RAJARHAT D/C WILL TRIP	IF ANY 400 kV FEEDER TRIPS	TRIPPING OF INDIVIDUAL FDR CAN BE KEPT ON/OFF IF LOAD IN ANY 400 kV FDR REACHES ALARMING VALUE AFTER OUTER OF ANY OTHER 400 kV FDR	JEERAT BONGA D/C: 38 MW (PER CKT) JEERAT-MAHISPOTA D/C: 44 MW (PER CKT)
		132 kV BONGA D/C, ASHOKENAGAR D/C,	IF ANY OF 315 MVA TR. TRIPS	TRIPPING OF INDIVIDUAL	

SL NO.	SUBSTATION	THE DETAIL OF THE LRS	CONDITION AT WHICH IT WILL OPERATE	REMARKS	TENTATIVE LRS QUANTUM AS MEASURED IN SUMMER PEAK REFERENCE(IN MW/A)
		MAHISPOTA D/C, BARASAT D/C & 220 kV RAJARHAT D/C WILL TRIP		FDR IS KEPT ON/ OFF CONSIDERING TRANSFORMER LOADING	
		132 kV BONGA D/C, ASHOKENAGAR D/C, MAHISPOTA D/C, BARASAT D/C WILL TRIP	IF ANY 160 MVA AUTO TR. TRIPS	TRIPPING OF INDIVIDUAL FDR IS KEPT ON / OFF CONSIDERING TRANSFORMER LOADING	
		132 kV BONGA D/C, ASHOKENAGAR D/C, MAHISPOTA D/C, BARASAT D/C & 220 kV RAJARHAT D/C , 220 kV BARASAT D/C WILL TRIP	IF 400 kV BUS BAR PROTECTION MAIN-1 OR MAIN-2 OPERATES	TRIPPING OF INDIVIDUAL FDR CAN BE KEPT ON OR OFF POSITION	
3	220/132 kV KASBA	ALARM WILL GENERATE AT KASBA S/S ALONG WITH CESC END	IF 132 kV KASBA-CESC # 1, 2 & 3 EACH HAVE 550 A		ALARM
		IF LOAD OF ANY BARASAT-KASBA #1 & 2 EXCEEDS 672A	1. 132 kV KASBA-SONAPUR D/C & KASBA-SL D/C WILL TRIP.	EXCEPT FOR SONARPUR	SALT LAKE MAXIMUM: 90 MW

SL NO.	SUBSTATION	THE DETAIL OF THE LRS	CONDITION AT WHICH IT WILL OPERATE	REMARKS	TENTATIVE LRS QUANTUM AS MEASURED IN SUMMER PEAK REFERENCE(IN MW/A)
			1. 220 kV KASBA-SBG D/C GETS TRIPPED. 3. 120 MW LOAD OF CESC WILL TRIP.	D/C OTHERS ARE ON	
		IF LOAD OF ANY SBG-KASBA # 1 & 2 EXCEEDS 695 Amp	1. 132 kV KASBA-SONAPUR D/C & KASBA-SL D/C WILL TRIP. 2. 220 kV KASBA-BARASAT D/C GETS TRIPPED. 3. 120 MW LOAD OF CESC WILL TRIP.	EXCEPT FOR SONARPUR D/C OTHERS ARE ON	SALT LAKE MAXIMUM: 90 MW
		IF LOADING OF ANY OF THE 220/132 kV TRANSFORMERS REACHES FULL LOAD VALUE	30 MW LOAD OF CESC WILL TRIP (WITH DELAY-1.5 SEC): THEN AFTER TIME DELAY OF 1 SEC AGAIN 30 MW LOAD OF CESC WILL TRIP. FURTHER IF ANY TR TRIPS 120 MW LOAD OF CESC WILL TRIP WITH 0.1 SEC DELAY	KEPT ON	
4	400/220/132 kV ARAMBAG	IF LOADING OF ANY 315 MVA TR EXCEEDS 115% OF FULL LOAD(826 Amp) IN 220 kV SIDE	ALL 33kV FDRS : (JOYRAMBATI, TARUI, KAMARPUKUR-1 & 2 ,ARAMBAG, MAYAPUR-I,II &III AND GOURHATI, SHANTIPUR, KOTOLPUR, ABG TOWN) . 132kV TARAK #1 &2, 132 kV RAINA #1 &2 & 132 kV BIRSINGHA #1 & 2,	TRIPPING OF INDIVIDUAL FEEDERS CAN BE KEPT ON OR OFF POSITIONS	JOYRAMBATI: 330 A KOTOLPUR: PRESENTLY NOT TAKING ARAMBAG: 210 A KAMARPUKUR#1: 160 A KAMARPUKUR#2: 200 A MAYAPUR#1: 200 A MAYAPUR#2: 130 A

SL NO.	SUBSTATION	THE DETAIL OF THE LRS	CONDITION AT WHICH IT WILL OPERATE	REMARKS	TENTATIVE LRS QUANTUM AS MEASURED IN SUMMER PEAK REFERENCE(IN MW/A)
			132 TRANSFER BUS AND 220 kV MIDNAPUR #1 & 2, 220 kV TRANSFER BUS WILL TRIP		MAYAPUR#3: 300 A GOURHATI: 340 A SHANTIPUR: 130 A ARAMBAG TOWN: 350 A
		IF BUS BAR TRIP RELAY (96) OPERATES AND 400 kV BUS COUPLER TRIPS (EITHER BY BUS DIFFERENTIAL OR LBB OPERATION)	ALL 33 kV FDRS : (JOYRAMBATI, TARUI,KAMARPUKUR-1 & 2 ,ARAMBAG, MAYAPUR-I,II &III AND GOURHATI, SHANTIPUR,KOTOLPUR, ABG TOWN) . 132 kV TARAK #1 &2, 132 kV RAINA #1 &2 & 132 kV BIRSINGHA #1 & 2, 132 TRANSFER BUS AND 220 kV MIDNAPUR #1 & 2, 220 kV TRANSFER BUS WILL TRIP	TRIPPING OF INDIVIDUAL FEEDERS CAN BE KEPT ON OR OFF POSITIONS	RAINA : MAXIMUM 90 MW
5	400/220/132 kV GOKARNA	8 Numbers OF 33 kV FDRS WILL TRIP	IF LOADING OF ANY 315 MVA ICT REACHES 115% OF FULL LOAD RATING	KEPT ON	KANDI#1: 165 A; KANDI#2: 150 A; BHABANINAGAR: 200 A; GOALJAN: 230 A; NABOGRAM#1: 270 A; NABOGRAM#2: NOT TAKING LOAD; GOKARNA#1: 125 A; GOKARNA#2: 210 A

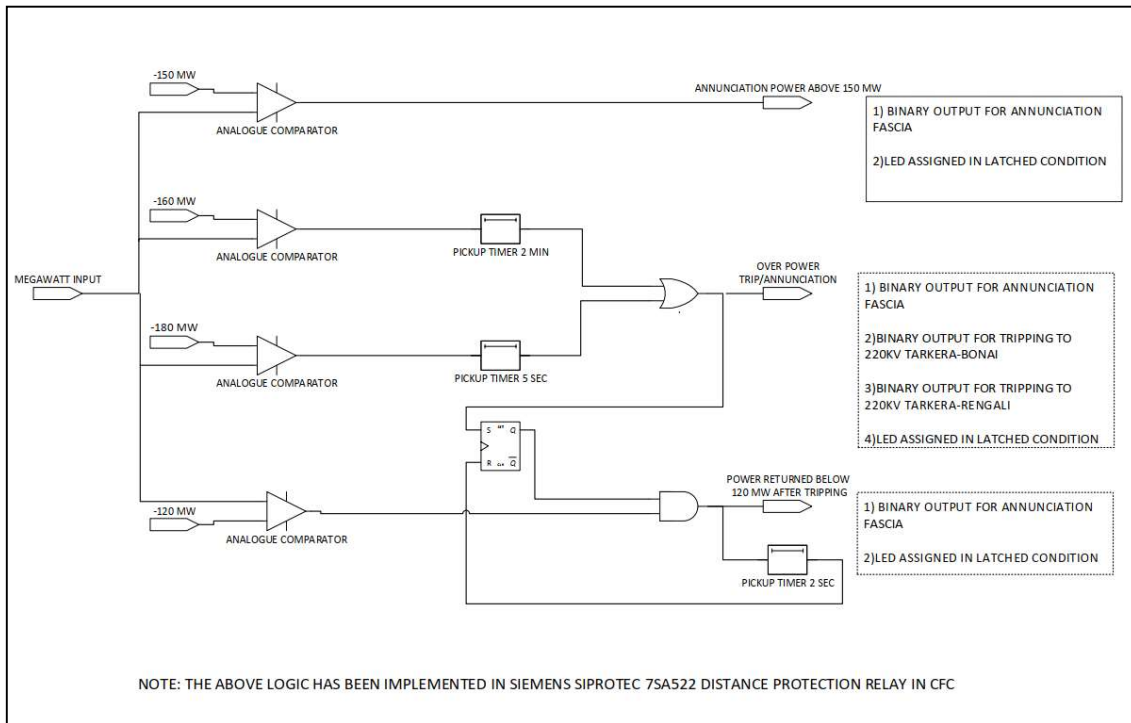
SL NO.	SUBSTATION	THE DETAIL OF THE LRS	CONDITION AT WHICH IT WILL OPERATE	REMARKS	TENTATIVE LRS QUANTUM AS MEASURED IN SUMMER PEAK REFERENCE(IN MW/A)
6	220/132 kV SUBHASGRAM	220 kV SBG-LKP #1 &2 WILL TRIP	IF 220 KB SBG (PG)-SBG (WB) #1 &2 EACH HAVE 1550 A	KEPT ON	LOADING OF 220 kV SBG-LKP CKT: MAXIMUM 180 MW (EACH CKT)
7	220/132 kV LAKHMIKANTAPUR	ALL 33 kV FDRS AT LKP & 132 kV LKP-KAKDWIP #1 &2 WILL TRIP	IF ANY OF THE 220 kV LKP-SBG LINE EXCEEDS 640 A (PICK UP VALUE) FOR 1.5 sec	LRS IS KEPT ON/OFF FOR SELECTED 33 kV FDR OR KAKDWIP CKT BASED ON LOADING OF LKP-SBG CKT	MAXIMUM 114 MW (LKP 33 kV TOTAL) 48 MW (KAKDWIP)
		ALL 33 kV FDRS AT LKP	HV SIDE LOADING OF ANY 160 MVA TR#1 ,2, 3 REACHES 462 A	LRS IS KEPT ON/OFF FOR SELECTED 33 kV FDR	33 kV LOAD: MAXIMUM 114 MW

***There are various other LRS Scheme in West Bengal apart from these which are internal within their system. (These Scheme needs updating from West Bengal Team)**

2. Load Relief Scheme Implemented in Orissa System

SPS for 220 kV Rourkela-Tarkera D/C

Item	Information
Reporting Party	SLDC Orissa and OPTCL
Scheme's Name	SPS for N-1 Contingency for 220 kV Rourkela-Tarkera D/C
Classification	SPS Related to Line Loading
Reference No.	SPS-Orissa 1
Operating Procedure	By Sensing Current (Loading) of individual Line and trip command for individual circuit.
Design Objectives	For safeguarding of 220 kV Rourkela-Tarkera D/C during N-1 contingency due to overload.
Operation	<p>In case the load flow in any one of the 220 KV Tarkera- Rourkela D/C line is:</p> <ol style="list-style-type: none">1. 150 MW : Alarm to Operator.2. 160 MW : Tripping of both 220 KV Tarkera-Rengali and Tarkera-Bonei lines with a Time delay of 2 min,3. > 180 MW : Tripping of both 220 KV Tarkera - Rengali and Tarkera - Bonei lines with a Time delay of 5 Sec <p>Further, both the tripped lines will be Switched ON when the load drops down to 120 MW or as per the instruction of SLDC, Odisha to Tarkera GSS.</p>
Modelling	Modelled using overcurrent setting of relays.
Original In-Service Year	27-08-2021
Recent Assessment Group	SLDC Orissa, OPTCL, ERLDC and ERPC
Recent Assessment Date	2021 Dec 2022: Reviewed. No revision required.



Annexure-C.3

POWER SYSTEM DEVELOPMENT FUND												
Status of the Projects in Eastern Region												
Sl No	State	Entity	Name of the scheme	Grant Approved	Grant sanctioned on	1st Installment grant released on	Completion Schedule	Completion schedule w.r.t date of 1st instalment	Grant aviled so far	Under process of release	Total awards amount of placed of till date	Latest status
1	Bihar	BSPTCL	Renovation and Upgradation of protection system of substations. (18)	64.22			24		56.04		69.195	90% grant availed on award cost.
2			Installation of Capacitor bank in 20 Nos of Grid Sub Station. (74)	19.40			24		18.62		21.55	
			Total	83.10					73.03		90.745	
5	Jharkhand	JUSNL	Renovation & Upgradation of protection system of Jharkhnad. (161)	138.13	15-Nov-17	28-Mar-19	16	28-Jul-20	114.68	1.01	145.674	Project Completed.
6			Reliable Communication & data acquisition system upto 132kV Substations ER. (177)	22.36	24-May-19		24					Price bid has been opened. Tender on awarding stage.
			Total	160.49					114.68		145.674	
7	Odisha	OPTCL	Renovation and Upgradation of protection system of substaions. (08)	162.50	11-May-15	22-Mar-16	24	22-Mar-18	46.04		63.31	Project Completed on Dec-20. Request for release of final 10 % fund has been placed.
8			Implementation of OPGW based reliable communication at 132 kv and above substations. (128)	25.61	15-Nov-17	29-Mar-19	36	29-Mar-22	23.04		51.22	90% grant availed on award cost. Work In Progress
9			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)	27.23	27-Jul-18	1-Apr-19	18	1-Oct-20	8.17		24.5	90% grant availed . Rest work in progress
10			Implementation of Automatic Demand Management System (ADMS) in SLDC, Odisha. (196)	2.93	24-May-19	19-Feb-20	10	19-Dec-20	0.713		0.713	30% grant availed. Work in Progress.
11			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)	29.56	24-May-19	13-Feb-20	18	13-Aug-21	8.87		32.85	30% grant availed. Work in Progress..
12		OHPCL	Renovation and Upgradation of protection and control system of OHPC. (109)	22.35	22-May-17	25-May-18	24	25-May-20	14.94		21.25	90% grant availed on award cost.
			Total	270.18					101.35		193.42	
14	West Bengal	WBSETCL	Installation of switchable reactor & shunt capacitor for voltage improvement. (88)	43.37	22-May-17	22-Jun-18	19	22-Jan-20	33.07		40.83	90% grant availed on award cost. Will get completed by Oct'21
15			Renovation & Modernisation of Transmission System. (87)	70.13	22-May-17	25-Jun-18	25	25-Jul-20	63.12		96.44	90% grant availed on award cost. Will get completed by Mar'22
16			Installation of Bus Reactors at different 400kV Substation within the state of West Bengal for reactive power management of the Grid. (210)	71.74	24-May-19	23-Oct-19	19	23-May-21	39.3		45.62	30% grant availed on award cost. 04 Nos. of Reactors will be commissioned by December 2021. LoA of the 5th Reactor is yet to be placed.
17			Project for establishment of reliable communication and data acquisition at different substation at WBSWTCL. (222)	31.19	24-May-19	23-Oct-19	25	23-Nov-21	3.12			The tender has been been cancelled for OPGW. Re-tendering has to be done.
18			Implementation of Integrated system for Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST) system in West Bengal. (197)	10.08	43910		12					10% grant not yet requested
19		WBPDCL	Renovation and Modernization of 220/ 132 kV STPS switch yard and implementation of Substaion Automation System. (72)	23.48	5-Sep-16	18-May-17	18	18-Nov-18	21.13		32.09	Project Completed
21			Renovation and Modernization of switchyard and related protection system of different power stations (BTPS, BKTPS and KTPS) of WBPDCL (155)	45.16	27-Jul-18	27-Mar-19	12	27-Mar-20	34.52		41.68	Project Completed.
			Total	295.15					194.26		256.661	

POWER SYSTEM DEVELOPMENT FUND												
Status of the Projects in Eastern Region												
Sl No	State	Entity	Name of the scheme	Grant Approved	Grant sanctioned on	1st Installment grant released on	Completion Schedule	Completion schedule w.r.t date of 1st instalment	Grant aviled so far	Under process of release	Total awards amount of placed of till date	Latest status
22	DVC	DVC	Renovation and Upgradatn of the protection and control system of Ramgarh Sub Station. (81)	25.96	2-Jan-17	31-May-17	24	31-May-19	22.95	2.57	28.603	Project Completed.
23			Renovation and Modernization of control and protection system and replcement of equipment at Parulia, Durgapur, Kalyanewari, Giridhi Jamsedpur, Barjora, Burnpur, Dhanbad and Bundwan substation. (106)	140.50	16-May-17	14-Dec-17	24	14-Dec-19	102.43	0.98	127.684	
			Total	166.46					125.38		156.287	
24	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)	10.00	24-May-19		18		3.00		20	30% grant availed on award cost
				10.00					3.00		20.00	
26	ERPC	ERPC	Creation and Maintenance of web based protection database management. (67)	20.00	17-Mar-16	28-Jun-16	18	28-Dec-17	14.83		16.48	Project Completed
27			Study Programme on power trading at NORD POOL Academy for Power System Engineers of Eastern Region. (122)	5.46	27-Jul-18	27-Mar-19	13	27-Apr-20	4.61		5.37	
28			Traning Program for Power system Engineers of various constituents of Eastern Region. (117)	0.61	27-Jul-18	11-Apr-19	24	11-Apr-21	0.54		0.60888	90% grant availed on award cost.
			Total	26.07					19.98		22.45888	
			GrandTotal	1,011.46					631.68		885.25	

Anticipated Peak Demand (in MW) of ER & its constituents for June 2023

1	BIHAR	Demand (MW)	Energy Requirement (MU)
	NET MAX DEMAND	7083	4252
	NET POWER AVAILABILITY- Own Sources	554	299
	Central Sector+Bi-Lateral	7105	4320
	SURPLUS(+)/DEFICIT(-)	577	368
2	JHARKHAND		
	NET MAXIMUM DEMAND	2040	1175
	NET POWER AVAILABILITY- Own Source	480	208
	Central Sector+Bi-Lateral+IPP	915	667
	SURPLUS(+)/DEFICIT(-)	-860	-300
3	DVC		
	NET MAXIMUM DEMAND	3389	2236
	NET POWER AVAILABILITY- Own Source	6065	3706
	Central Sector+MPL	396	278
	Bi- lateral export by DVC	2187	1407
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	885	341
4	ODISHA		
	NET MAXIMUM DEMAND (OWN)	5950	3927
	NET MAXIMUM DEMAND (In Case of CPP Drawal)	6748	3197
	NET POWER AVAILABILITY- Own Source	3938	2228
	Central Sector	1953	1325
	SURPLUS(+)/DEFICIT(-) (OWN)	-59	-374
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal)	-857	356
5	WEST BENGAL		
	WBSEDCL		
5.1	NET MAXIMUM DEMAND	7675	4659
	NET MAXIMUM DEMAND (Incl. Sikkim)	7680	4663
	NET POWER AVAILABILITY- Own Source (Incl. DPL)	5272	2727
	Central Sector+Bi-lateral+IPP&CPP+TLDP	2758	1831
	EXPORT (To SIKKIM)	5	4
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	349	-105
5.2	CESC		
	NET MAXIMUM DEMAND	2380	1136
	NET POWER AVAILABILITY- Own Source	830	545
	IMPORT FROM HEL	540	373
	TOTAL AVAILABILITY OF CESC	1370	918
	DEFICIT(-) for Import	-1010	-218
	WEST BENGAL (WBSEDCL+CESC+IPCL)		
	(excluding DVC's supply to WBSEDCL's command area)		
	NET MAXIMUM DEMAND	10055	5795
	NET POWER AVAILABILITY- Own Source	6102	3272
	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	3298	2204
	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXPORT	-656	-319
	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXPORT	-661	-323
6	SIKKIM		
	NET MAXIMUM DEMAND	100	48
	NET POWER AVAILABILITY- Own Source	8	1
	Central Sector	81	58
	SURPLUS(+)/DEFICIT(-)	-11	11
	EASTERN REGION		
	NET MAXIMUM DEMAND	28056	17433
	NET MAXIMUM DEMAND (In Case of CPP Drawal of Odisha)	28838	16703
	BILATERAL EXPORT BY DVC (Incl. Bangladesh)	2187	1407
	EXPORT BY WBSEDCL TO SIKKIM	5	4
	EXPORT TO B'DESH & NEPAL OTHER THAN DVC	642	462
	NET TOTAL POWER AVAILABILITY OF ER	28709	17159
	(INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)		
	SURPLUS(+)/DEFICIT(-)	648	-278
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal of Odisha)	-134	452