Agenda

for

42nd TCC Meeting

of

EASTERN REGIONAL POWER COMMITTEE

Date: 12th December, 2019

Venue: Port Blair

EASTERN REGIONAL POWERCOMMITTEE, KOLKATA

AGENDA FOR 42ND TCC MEETING

Date: 12th December, 2019 (Thursday) **Place: Port Blair**

ITEM NO. A1:	CONFIRMATION OF THE MINUTES OF 41ST TCC MEETING

The minutes of the 41st TCC meeting held on 26th August 2019 at Kochi were circulated vide letter no. ERPC/TCC&COMMITTEE/14/2019/5601-67 dated 4th September, 2019.

No comments have been received from constituent members on the minutes of the meeting.

Members may confirm the minutes of 41st TCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B1:	Performance of Constituents of ER after implementation of DSM (5th amendment) Regulations, AGC & SCED of CERC

DSM (5th Amendment) Regulations, 2019 was notified by Honorable CERC on 28th May, 2019. The said amendment has been implemented w.e.f 3rd June, 2019. Accordingly, DSM account is being prepared and issued by ERPC Secretariat as per 5th Amendment Regulations.

ERPC Secretariat shall give a brief presentation on the performance of various constituents after the implementation of the latest regulations.

In 41st CCM, ERPC Secretariat gave a brief presentation on the behaviour of various constituents & grid frequency profile after implementation of DSM (5th amendment) Regulations'2019 and SCED regulations.

During the presentation, it was highlighted that there was significant over drawl by Bihar, West Bengal & DVC and under injection by generators FSTPP-I &II, KhSTPP -II and APNRL.

It was also observed that there was unrestrained under-injection by APNRL during the months of September & October 2019 and the per unit cost of under-injection was far below their variable charge. Hence, members took serious note of this and APNRL representative assured the forum of adhering to their generation schedule in future.

Keeping in mind about the grid security and stability it was advised to all the constituents to adhere to their schedule.

TCC may discuss.

ITEM NO. B2:	**Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network in Eastern Region**

CERC notified Communication Regulation which envisages Centralized Supervision System for ISTS Communication.

As per the regulation clause no 7.2 (vii):

"CTU shall be the Nodal Agency for supervision of communication system in respect of inter-State communication system and will implement centralized supervision for quick fault detection and restoration."

The issue was discussed in 24th SCADA O&M Meeting held at ERLDC on 14th August 2019, wherein Member Secretary, ERPC informed that a Committee is required to be formed for the assessment of technical requirements to facilitate monitoring of ISTS communication network in line with CERC regulation.

Accordingly, a Committee was formed and the Committee met on 24th October 2019 at ERLDC, wherein POWERGRID made a detailed presentation on Unified Network Management System (U-NMS) Project to be implemented for managing Project for ISTS & State utilities communication network at State, Regional &National level.

Members discussed the technical aspects of U-NMS proposal and generally found it is feasible technically for the U-NMS proposal. All Constituents have given their consent for implementation of U-NMS Project for Central Sector as well as for the State Sector/Constituents.

POWERGRID informed that the estimated cost for Eastern Region ISTS and state network U-NMS is **Rs. 99.93 Crs excluding AMC cost which is estimated as Rs. 2.6 Crs for 6 years after Warrantee period.** U-NMS Project implementation Schedule is considered as 24 months. Investment made by POWERGRID is proposed to be recovered through tariff as notified by CERC. Also it has been deliberated and agreed upon that AMC for U-NMS shall be carried out by POWERGRID itself for Central as well as State sector.

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

In the meeting it was pointed out by Member Secretary, ERPC that U-NMS would help in computing the communication availability. The procedure of communication availability was suggested in the draft CERC (Terms and Conditions of Tariff), 2019 but the same was not incorporated in the final tariff regulation, 2019.

All ER Constituents informed that as the separate availability certification of communication system has not been notified by CERC, so this much of investment needed further scrutiny.

Powergrid informed that for better system visibility, redundant path identification and fault finding for whole communication network (either inter-regional or intra-state) the centralized U-NMS would certainly help and improve the availability of communication network. POWERGRID also mentioned visibility of all ISTS & State Utility Communication Nodes in

single NMS would be possible through central U-NMS. Further, Powergrid informed that a number of regions have already accorded approval for implementation of the project.

The issue was also discussed in 41st Commercial Sub Committee Meeting held on 27th November 2019. During deliberation, it emerged that the project was initially envisaged based on the guidelines of CERC in respect of certification of Communication system availability by RPCs. The idea was floated by CERC during the draft stage of Tariff Regulations 2019-2024. However, in the final Tariff Regulations 2019-24, this idea was dropped by the Commission due to lack of clarity.

Powergrid representative informed that based on the technical requirement of the system the U-NMS project is necessary for monitoring of communication network at State, Regional & National level.

POWERGRID was advised to submit the details of the project to ERPC secretariat within a week along with relevant CERC regulations in respect of this project. Further, POWERGRID was asked to also submit revised Cost estimate of the project by considering the State NMS project along with breakup of each component, recovery mechanism and apportionment of the cost among constituents etc.

Upon discussion it was also found that the U-NMS project is proposed to be implemented in pan-India basis and the recovery of the cost of the project shall be on all India basis.

POWERGRID informed that the project has already been approved in WR, NR & NER regions.

Further, POWERGRID was advised to give a detailed presentation on the same in forthcoming TCC meeting.

Matter was referred to upcoming TCC/ERPC for further concurrence.

PGCIL may give a presentation. Members may discuss.

ITEM NO. B3:	**Implementation of Automatic Generation Control in Eastern Region**

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

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

I. All thermal ISGS stations with installed capacity of 200 MW and above and all hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC are directed to install equipment at the unit control rooms for transferring the required data for AGC as per the requirement to be notified by NLDC. NLDC shall notify the said requirements within one month of this order.

II. All such ISGS stations whose tariff is determined or adopted by CERC shall have communication from the nearest wide band node to the RTU in the unit control room.

III. The Central Transmission Utility (CTU) is directed to have communication availability from NLDC/ RLDCs to the nearest wide band node/ switchyard for the generating stations in a redundant and alternate path ensuring route diversity and dual communication.

IV. The NLDC is also directed to commission the required communication infrastructure.

V. The expenditure as a result of compliance of the above directions may be claimed as per relevant regulations or provisions of the PPA.

VI. The NLDC is directed to monitor implementation of the above directions so that all the ISGS stations whose tariff is determined or adopted by CERC are AGC-enabled within six months of this order.

VII. The framework regarding compensation for AGC support and deviation charges as stipulated in the Commission's Order in Petition no. 79/RC/2017 dated 06.12.2017 shall apply to the five pilot projects as also to other ISGS as and when they are AGC enabled. This arrangement shall remain in place till the relevant regulations inter alia on compensation for AGC services are framed by the Commission.

VIII. NLDC/RLDCs are allowed to operate the AGC system for enabling the signals to the power plants at the earliest.

IX. All new thermal ISGS stations with installed capacity of 200 MW and above and hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC shall mandatorily have the capability to provide AGC support.

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

A. Status of implementation of AGC for ISGS stations

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Members may update.

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

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

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

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

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

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

Summary of status of implementation:

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

Members may update.

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

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

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

NTPC may explain.

TCC may discuss.

ITEM NO. B4:	Strengthening of OPGW Network within the ER-Grid and connectivity with other regions

In 23rd SCADA O/M meeting held on 06.03.2019, ERLDC requested ERPC Secretariat to form a committee which could ascertain the requirement of OPGW along with communication equipment after considering the route diversity to bring reliability in Power System operation as per requirement.

Accordingly, a Committee was formed. The Committee met on 14.08.2019 and 24.10.2019, wherein the members discussed about the requirement of additional Inter-regional and Intra-regional OPGW links for strengthening of Eastern Regional OPGW network.

Followings were found to be the list of additional OPGW link, which envisaged by the Committee for implementation along with communication equipment and DCPS:-

Sl No	Corridor	Selected lines for laying OPGW	Length (km)
1	ER- NR (ISTS)	765 kV S/C Gaya-Varanasi Line –l	265
2		400 kV D/C Patna – Balia Line –I	195
3	ER – WR (ISTS)	765 KV S/C Ranchi – Dharamjaygarh Line-1	305
4		765 KV S/C Jharsugada – Dharamjgarh Line-1	149
5	ER-SR (ISTS)	400 kV D/C Jeypore – Gazuwaka	221
6	ISTS network	400 kV D/c Nabinagar (BRBCL) Generating Station – Sasaram	82
7		400 kV Farakka –Purnea S/C	160
8		400 kV Farakka-Sagardighi-Subhasgram S/C	301
9		400kV Maithan (PG) – Durgapur (WB) D/C	128
10		400KV Durgapur (PG) – Sagardighi (WB) S/C	72
11	DVC network	220 KV KTPS – Giridih (Line # 251 , 252) D/C	101
12		132 KV Jamuria – Ramkanali (Line # 90) S/C	53
13		132 KV Ramkanali – CTPS (Line # 60) S/C	70
14		132 KV Purulia – Jamshedpur (Line # 39,40) D/C	87
15		132 KV CTPS – Gola (Line # 6,7) D/C	67
16		Howrah (DVC) – Howrah(WB) D/C	1
17	JUSNL network	220 kV Daltonganj (JUSNL) – Latehar (JUSNL) LILOed at Daltanganj (PG) D/C	90
18		220 kV Jodda (OPTCL)- Ramchandrapur (JH) S/C	130
19		220 kV Chandil (JH)- Ranchi (PG) (up to LILO point) D/C	90

All constituents agreed for implementation of the above-mentioned OPGW links in Central Sector (Sl. 1 to 10) by POWERGRID.
DVC also requested POWERGRID to take up the implementation of OPGW links of DVC Sector (Sl. 11 to 16).
JUSNL also requested POWERGRID to take up the implementation of OPGW links of JUSNL Sector (Sl. 17 to 19).

The detailed report is available at ERPC website in Miscellaneous/Reports section.

In 2nd TeST Meeting held on 26.11.2019, ERPC Secretariat pointed out that in ER-WR corridor, both OPGW links i.e. 765 KV S/C Ranchi – Dharamjaygarh Line-1 and 765 KV S/C

Jharsugada – Dharamjgarh Line-1 will terminate at Dharamjaygarh S/s so this would not form the redundant communication path through ER-WR corridor. Hence, it was suggested to have OPGW on 765 KV S/C Jharsugada – Dharamjgarh Line-1 (length - 149 km).

Members requested POWERGRID to explore for alternate path or the other possibility to include in future projects.

POWERGRID agreed for the same and informed that they will suggest an alternative path for ER-WR connectivity.

ERPC Secretariat asked POWERGRID about the tentative cost of the project, the methodology to recover it and how it will be apportioned among the constituents.

Thereafter, Powergrid vide letter dated 3rd December 2019 submitted that total cost estimate for implementation of the project would be Rupees 83 Cr. (Copy of the letter is enclosed at **Annexure-B4**).

Powergrid may apprise. TCC may discuss.

ITEM NO. B5:	**Review of the PSS Tuning of Generators in Eastern Region**

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

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

Generating Power Plant	**Observation**	**Status of Action Plan to be informed to OCC**
All Units of DVC Generating Plant	Oscillation Observed at DSTPS on 24th April 2019 and other Oscillation events in the past.	DVC gave consolidated plan for its units in 162nd OCC
All Units of OPGC and OHPC, Sterlite	PSS are tuned long back and in many units PSS have not been tuned but are in service.	OPGC units—Feb 2020
Sikkim Hydro Complex (Teesta-III, Teesta-V, Chujachen, Dikchu, Tashiding, Jorethang)	In view of Oscillation during the 16th April 2019 events and changes in Network configuration in Sikkim hydro Complex with augmentation of lines	Teesta-III: PSS Tuned on 21 Oct. 2019. Dikchu: To be done on 22 Nov. 2019 after necessary shutdown approval. Jorethang: Jan. 2020 Chujachen and Tashiding: Feb 2020 Teesta-V: March 2020
MPL Plant	Due to Change in Network	MPL Unit-2: 14th June-

	configuration during to bus splitting at Maithon.	2019 during AOH. MPL Unit-1: Planned during AOH in Jan-2020.
APNRL Plant	Oscillation with Low Damping during transient and switching observed at the plant.	APNRL will Tune in Nov 2019 as per 162nd OCC
Farakka NTPC Power Plant	With Augmentation of new lines and changes in network configuration with upcoming bus split at Kahalgaon.	PSS Tuning of Unit 6 has been done. Other units are planned in December 2019
NPJC/BRBCL/KBUNL NTPC Power Plant	The new units have been commissioned however there are no details on the PSS tuning activity in line with Indian Electricity Grid Code and CEA Grid Connectivity Standards	BRBCL has submitted PSS tuning details only for Unit 2. For other units' details to be submitted by NTPC.
GMR	Was done in 2013 and retuning is required with change in the network at Angul.	During overhauling in Nov 2019
Sterlite 4 X 600 MW	Due to network changes.	Plan not yet submitted (Orissa SLDC)

Members may update.

ITEM NO. B6:	**Automatic Under Frequency Load Shedding (AUFLS) Scheme**

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

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

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

The scheme had been implemented throughout the country.

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

In 8thNPC meeting, held on 30.11.2018, members agreed for the AUFLS scheme with 4 stages and raising the frequency by 0.2 Hz viz. 49.4, 49.2, 49.0 & 48.8 Hz. It was further decided that

the quantum for AUFLS would be reworked by NPC Secretariat considering the requirement of load shedding to increase the frequency to 50 Hz in each stage of AUFLS operation.

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

The total load quantum for ER constituents is given below:

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

TCC may note and advise implementation of the revised AUFLS scheme.

ITEM NO. B7:	Implementation of Automatic Demand Management Scheme (ADMS)

The latest status along with proposed logic as follows:

Sl No	State/Utility	Logic for ADMS operation	Implementation status/target	Proposed logic (if different from under implementation logic)
1	West Bengal	F <49.7 AND deviation > 12 % or 150 MW	Implemented on **25.11.16**	F <49.9 AND deviation > 12 % or 150 MW
2	DVC	F <49.7 AND deviation > 12 % or 150 MW	Implemented on **17.06.2016**	
3	Jharkhand	1. System Frequency < 49.9 Hz AND deviation > 12 % or 25 MW 2. System Frequency < 49.9 Hz AND deviation > 12 % or 50 MW 3. System Frequency < 49.9 Hz AND deviation > 12 % or 75 MW	In service from **21st August 2019.**	Condition 1: Block I feeders will be selected for load shedding Condition 2: Block I & II feeders will be selected for load shedding Condition 3: Block I, II & III feeders will be selected for load shedding

4	Bihar	F <49.7 AND deviation > 12 % or 150 MW	*Installation of ADMS had been completed and the testing would be done by end of November 2019.*	F <49.9 AND deviation > 12 % or 150 MW
5	Odisha	1. System Frequency < 49.9 Hz 2. Odisha over-drawl > 150 MW 3. DISCOM over-drawl > (40 MW)	10 Months *Tender for the work has been floated.*	Logic 2 and 3 is AND or OR, in case it is AND then ADMS may not operated when discom are in schedule but GRIDCO is overdrawing due to less generation at state embedded generators
6.	Sikkim			Sikkim informed that they have submitted a proposal to PSDF Committee for installation of OPGW cables which is under approval stage. Sikkim added that ADMS scheme would be implemented after installation of OPGW.

Bihar, Odisha and Sikkim may update.

ITEM NO. B8:	**Reconductoring work of 400 kV Rangpo-Binaguri D/C lines**

In 162nd OCC, Powergrid explained that reconductoring work of both 400 kV Rangpo-Binaguri D/C lines would take 1 year time approximately and they are ready to take shutdown of both the circuits from 01.11.2019.

ED, ERLDC advised Powergrid to complete the reconductoring work of one circuit by end of February 2020. He added that after February 2020, shutdown of both lines is not possible in view of the likelihood of rise in hydro generation in Sikkim.

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

In 163rd OCC, Powergrid updated that the work had been started from 1st November 2019, reconductoring of 4 km of both the circuits out of 110 km line had been completed (3 km in West Bengal and 1 km in Sikkim).

OCC advised Powergrid to submit a detail schedule to ERPC and ERLDC.

Powergrid may submit the schedule and update the latest status of progress.

ITEM NO. B9:	Compensation of MPL station on account of SCED

Maithon Power Limited (MPL) has been included in the RRAS & SCED Scheme w.e.f 12th June 2019. Majority of time MPL is getting SCED down schedule only. Due to part load operation of the station, the Compensation has been given to the station due to degradation of heat rate of the station.

In view of the above, ERPC has published the compensation statement for the months June 2019 & July 2019 vide No. ERPC/COM/REA/2019/6885-6897 dated 10.10.2019, where in it was observed that, in the calculation of compensation the reduction of load of MPL due to part load operation on account of SCED has not been considered for these months.

The issue was discussed in 41st CCM, wherein MPL representative explained the issue of not getting full compensation for the station after participation in SCED w.e.f. 12th June, 2019. He further added that the compensation on account of SCED was given but the compensation due to under requisition of beneficiaries was not considered.

It was deliberated in the meeting that the share allocation of MPL station is based on fixed LTA quantum (in MW) to beneficiaries unlike other central sector generating stations which are in percentage basis based on the allocation done by Ministry of Power, Govt. of India. Hence, as per prevailing regulations the compensation cannot be calculated on percentage basis for the stations whose share allocation is in MW.

Further, the compensation for central generating station would be given if the average unit loading is less than 85% either due to under requisition of beneficiaries or due to net SCED down schedule.

MPL was advised to sort out the issue with the beneficiaries. In case the issue remains unresolved, MPL is at liberty to file a petition before CERC to get clarification in the methodology of compensation for IPP stations.

However, after discussion it was decided to refer the issue to upcoming TCC for further deliberation.

TCC may discuss.

ITEM NO. B10:	Testing and Calibration of Special type Energy Meter

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

Quote……

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

……Unquote

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

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

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

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

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

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

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

The Matter was referred to forthcoming TCC/ERPC meeting.

TCC may discuss.

ITEM NO. B11:	Replacement of GPRS communication with Optical Fiber for AMR

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

In 39th CCM, Powergrid requested other utilities to share their Fibre details to explore possibilities of using their own optical fiber network, wherever it is available, for communicating with AMR for smooth functioning of AMR.

In 156th OCC, Powergrid informed that optical fiber for AMR had been implemented at 35 locations and rest of the locations would be completed by May 2019.

In 40th CCM, POWERGRID requests all the constituents to share the available optical fibre network connectivity for further configuration to Optical connectivity. This will also help to reduce the maintenance cost of AMR, as recurring cost towards SIM cards may be avoided in that case.

POWERGRID also informed that optical fiber for AMR has been implemented for 38 locations out of 40 and rest would be completed by August'19. However, M/s TCS has confirmed that total 35 locations out of 40 was connected with LAN and the status is enclosed in **Annexure-B11.**

In 41st CCM, BSPTCL representative informed the required details of optical fibre network connectivity have been shared to POWERGRID for configuration AMR Optical connectivity.

POWERGRID informed that they have not received any response from other constituents on this matter. All the constituents were advised to explore the possibility of Optical fibre network connectivity instead of GPRS for communication AMR system as this will significantly enhance the reliability of the system.

The matter was referred to forthcoming TCC meeting for guidance.

TCC may guide.

ITEM NO. B12:	Procurement of new SEMs

In 30th ERPC meeting procurement of 965 no of SEM's and 110 nos of Laptop/DCD (in 111th OCC meeting) was approved. Further 31st TCC/ERPC approved the cost sharing mechanism of expenditure on SEM's and DCD/Laptops along with POWERGRID overhead charges @ 15% to be shared by the beneficiaries constituents of Eastern Region in proportional to the share allocation for the month in which the proposal was approved in the ERPC meeting.

In 35th CCM held at ERPC on 02.08.17, PGCIL informed that in 1st phase, 300 meters and 40 laptops with software had been supplied by M/s Genus so far.

In 145th OCC, PGCIL informed that 300 meters of 2nd lot has been supplied. Time drifted meters are being replaced by Genus meters phase wise.

In 38th CCM, PGCIL informed that remaining 364 nos. of meters has been delivered.

In 40th CCM, POWERGRID requested ERLDC to provide the list of required anticipated new connections and they will place the cost estimate accordingly.

The list of future requirements of meter details regarding upcoming Generation project/ Sub-station may be furnished to ERLDC.

In 41st CCM, PGCIL provided the list of upcoming project details for one year. Based on the data provided by PGCIL (ER-1, ER-2 and Odisha Project) total 202 number of SEMs are required. PGCIL also confirmed that present stock is approximately 210 numbers. The details are attached in ***Annexure-B12.***

The Matter was referred to forthcoming TCC/ERPC meeting.

TCC may discuss.

ITEM NO. B13:	**Outage of important transmission lines**

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

400 kV D/C Kishenganj – Patna line has been out since 02.09.2018 due to tower collapse which occurred as a result of change of course of Ganga river. The circuit – 2 has been restored on 16.01.2019 on ERS but the final restoration of D/C line has not yet been done. In different meetings of ERPC, PGCIL has highlighted the challenges being faced by them in normalising the lines.

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

The Committee constituted for analyzing the major outages of ISTS elements of ER had made extensive deliberation on this issue in its meeting held on 13.02.2019 and 24.10.2019. The Committee also visited the affected location of tower collapse to assess the actual site condition and volume of work involved etc.

During the 3rd meeting of Committee & in 163rd OCC, Powergrid informed that both circuits of 400 kV Kishenganj-Patna D/C line would be restored through ERS by ***December 2019.*** *Powergrid added that permanent restoration of both the circuits of 400 kV Kishenganj-Patna D/C lines would be completed by* ***March 2020.***

Powergrid may update.

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

400kV Purnea - Biharsharif D/C line was out of service from 10/08/18 due to the change of course of the river Ganges and heavy velocity of flow of water which leads to tower collapse. The lines have not yet been restored. In different meetings of ERPC, ENICL had highlighted the challenges being faced by them in normalising the lines.

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

The Committee constituted for analyzing the major outages of ISTS elements of ER had made extensive deliberation on this issue in its meeting held on 13.02.2019 and 24.10.2019, The Committee also visited the affected location of tower collapse to assess the actual site condition and volume of work involved etc.

During the 3rd meeting of Committee and in 163rd OCC, ENICL informed that 400 kV Purnea-Biharshariff D/c would be restored by 30th November 2019.

Further ENICL vide mail dated 02.12.2019 intimated that 400 kV Purnea-Biharshariff D/c would be restored by ***15th December 2019.***

TCC may note.

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

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

After detailed deliberation, it was emerged that one of the circuits of 400 KV Barh – Motihari (DMTCL) – D/C line could be restored as 400 KV Barh – Motihari (DMTCL) S/C line and other circuit could be directly connected to Gorakhpur to operate as 400 KV Barh-Gorakhpur S/C line keeping one circuit of 400 kV Motihari – Gorakhpur line under outage, till its tower restoration, so that Barh STPS generation could be evacuated safely.

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

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

The Committee constituted for analyzing the major outages of ISTS elements of ER had made extensive deliberation on this issue in its 3rd meeting held on 24.10.2019. The Committee also

considered to visit the affected location of tower collapse in December, 2019 to assess the actual site condition and volume of work involved etc.

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

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

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

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

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

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

OCC referred the issue to 42nd TCC Meeting.

OCC advised DMTCL to attend 42nd TCC Meeting to be held at Port Blair on 12th December 2019 to ensure complete restoration work before summer.

DMTCL and Powergrid may update.

ITEM NO. B14:	Strengthening of Transmission Tower Near to River basin to avoid Frequent Tower Collapse

Frequent Tower Collapses have been explained in the Eastern Region due to change in river course of Gandak and Kosi rivers. This has endangered the reliability of power supply to Bihar as well as to the region as a whole. It has been observed that the towers which have collapsed during most of the tower collapse events due to change in river course were not of pile type foundation recommended for river basin areas.

Reports of the Standing Committee of experts on failure of EHV transmission line towers (October 2016 – March 2018) recommended the following for such transmission lines:

Pile type foundation may be considered for towers in flood prone area based on soil investigation report and latest high flood data. In case of damage of foundation of towers, the foundation design is required to be examined. The material test report of failed towers should be examined to ascertain the quality of the material. Providing proper revetment & use of geo-synthetic material in foundation, concrete encasing & painting of stub in water logging areas etc. may also be considered, wherever required.

In view of the above, all transmission licensees whose lines are prone to flooding may immediately take above remedial action as suggested by the committee. It is suggested by ERLDC to have all the towers in the flood-prone zone on pile foundation along with nearby tower should be provided with revetment to avoid soil erosion.

In 161stOCC, members appreciated the ERLDC proposal.

Member Secretary, ERPC informed that investment made in strengthening of towers should be recovered through tariff. Clear guidelines need to be formulated by the competent authorities for this. It was decided by OCC to raise this issue in the TCC and ERPC meetings so that a definite proposal could be forwarded to CEA and CERC.

OCC advised POWERGRID, ENICL, DMTCL, ATL and other ISTS licensees whose transmission line towers are prone to be affected by change of river course and flooding of river banks, should furnish a detail list of such tower locations together with tower types and tentative cost for constructing pile foundations for the towers to ERPC and ERLDC.

ISTS licensees may update.

TCC may discuss.

ITEM NO. B15:	**'Upgradation of SCADA/RTUs/SAS in the Central sector stations and strengthening of OPGW network in Eastern Region' Project**

In 39th ERPC Meeting, it was decided that,

i) ERPC approved the proposal of Power Grid for replacement of the old RTUs in the Eastern Region for reporting of RTU / SAS to backup control centres at an estimated cost of Rs. 88.57 Crore with an implementation time of 36 months.
ii) Power Grid shall place a proposal before PSDF Committee for financing the above project from PSDF.
iii) In case of non- availability of required funding from PSDF, the project shall be implemented by Power Grid and the cost shall be recovered by Power Grid through tariff.

Accordingly, POWERGRID applied for financing of the above project through PSDF vide letter no C/LD&C/PSDF/19-20/1 dated 22.07.2019. Subsequently, NLDC (nodal agency for PSDF) has intimated vide letter ref. NLDC-PSDF/TESG-51st meeting/2019-20/143 dated 18.09.2019 regarding non-availability of PSDF Fund for the above project. Hence, **it may be kindly recorded** that POWERGRID has already initiated the Placement of LOA and execution of the project through tariff basis.

TCC may note.

ITEM NO. B16:	**Up gradation proposal of CTS 220/132 kV Sub-stations (Malda, Dalkhola, Siliguri & Birpara) under ER-II**

In all four Substations of Chukha Transmission System (CTS), control & protection system was supplied by M/S. UE, which is completely obsolete from market and at present there is no

support or spare available for the same make relay. As such it is very much prudent to change the entire control & protection panels to increase the reliability.

All CTS S/S has crossed useful life of 25 Years (All above mentioned S/S are commissioned in the year 1986-87) as per CERC norms. Due to ageing many tit-bit items are replaced time and again but as a considerable time has crossed a major revamp are required, mainly in C&R panels due to age old technology, for all above stations for maintaining reliability in the system. Accordingly, a detailed investigation and probabilities are checked by internal teams of POWERGRID involving engineering and other concerned departments.

For Birpara & Siliguri, already 132 KV systems are converted to GIS and no augmentation is required. However, for both stations, although outdoor equipment's are changed in different up gradation scheme, original C&R panels are yet to be replaced. For both stations distributed control (Kiosk based control) / De-centralized SCADA envisaged, without changing outdoor equipment's. Cost involvement for both stations in this method will be approx. 5.0 Crore each.

For Dalkhola, as it is switching station, and existing control room has got enough place for housing new panels, centralised SCADA with only new relay panels are envisaged. However, some old equipment's also required to be replaced like CB, Isolators etc. Cost involvement for Dalkhola up gradation will be approx. 10.5 Crore.

For Malda S/S, 132 KV system is already approved for conversion in GIS. However, the existing switching scheme for 400kV & 220kV Switchyards is Double Main & Transfer Bus arrangement (DMT type) and continuously in operations since 1986. Although the present practice is to have one & half CB scheme but due to space constraints, DMT scheme is in place and it is very known factor that maintenance of Pantograph isolators are tedious and also require bus shut down for any maintenance. Again, any bus bar protection operation in DMT will result element outage which may affect reliable operation.

Accordingly there are 03 probable solutions are envisaged for Malda S/S:-

A. Complete conversion of existing 400 KV & 220 KV AIS to GIS with conversion of DMT scheme to 1½ CB (At 400 KV)- Cost involvement will be around 80.0 Crores. This option will enable space for installation of another 400/220 KV ICT & Lines (02 more). Also it will increase reliability as per connectivity.
B. Conversion of 400 KV AIS to GIS with conversion of DMT scheme to 1½ CB & implementing distributed control for 220 KV- Cost involvements will be around 64.0 Crores.
C. Complete conversion of existing 400 KV & 220 KV AIS to Distributed Control AIS system (De-centralised SCADA)- In this method scheme will be remain DMT for 400 KV and only existing C&R panels will be replaced by distributed control (Kiosk method). Cost for this method will be around 19.5 Crores.

As this all four S/S are quite important in terms of Eastern Grid & existing C&R panels and schemes are really old, those require revamp.

In 163rd OCC, Powergrid informed that the substations were commissioned in around 1986 and needed to be upgraded.

Powergrid ER-I also informed that some old substation in ER-I also needed to be upgraded.

Member Secretary, ERPC advised Powergrid to send the details to ERPC and advised to give a detailed presentation in 42nd TCC Meeting for detailed deliberation.

OCC referred the issue to 42nd TCC Meeting for further deliberation.

TCC may discuss.

ITEM NO. B17:	Issue of trial operation/completion certificate by ERLDC for Alipurduar-Punasangchu OPGW link

The OPGW work in Alipuduar-Punasangchu link (64 Km) alogwith communication equipment was completed for India Portion on 28.03.2019. POWERGRID requested ERLDC to issue Trial Operation Certificate/Completion certificate for India Portion of Alipurduar-Punasangchu link. ERLDC vide their letter dtd 24.09.2019 intimated that the certificate can be issued after transfer of data & voice through this link. But the work is completed by POWERGRID for Indian Portion (with transmission line) and the link could not be established due to pending work in Bhutan side. Accordingly, it is requested to issue the trail operation/completion certificate by ERLDC for Alipurduar-Punasangchu link (India Portion).

In 163rd OCC, it was opined that the issue is genuine and the trial operation certificate may be issued in this case.

ERLDC informed that since it is an international connectivity the trial operation certificate shall be given by NLDC. However, ERLDC agreed to pursue with NLDC.

In 2nd TeST meeting held on 26.11.2019 at ERPC, Kolkata, NLDC informed that purpose of laying OPGW on Alipuduar-Punasangchu link (64 Km) along with communication equipment (India Portion) is not fulfilled until OPGW link up to Punasangchu, Bhutan is ready. So, as per CERC regulation, there is no provision to give trial operation certificate considering the present scenario.

Powergrid informed that they should receive the OPGW certificate in the same way as received for transmission line.

The issue was referred to 42ndTCC/ERPC meeting for further discussion.

TCC may discuss.

ITEM NO. B18:	Short closing of URTDSM Project installed in Eastern Region

Under URTDSM project, 12 nos. PMUs could not be commissioned due to various reason as mentioned below:

a. Bankruptcy/admin. issue : 2 PMUs (IPPs - Monnet & IndBharat)

b. Non-availability of communication link : 8 PMUs (GMR IPP & JITPL IPP)
: 2 PMUs at Tenughat

c. Substation not ready : 3 PMUs at Patratu

In 1st TeST meeting held on 24.10.2019, the issue was discussed and POWERGRID requested for short-closing of the pending erection/commissioning activities of PMU in above sites.

As there is no change in status even after long period of waiting, pending completion of above, POWERGRID may be given go-ahead for submitting tariff petition based on the supply and works carried out in actual for the above-mentioned 12 nos. PMUs at 06 nos. sites.

In 163rdOCC meeting, OCC advised to keep the PMUs as spare wherever it is accessible.

This issue was further deliberated in the 2ndTeST meeting held on 26.11.209 at ERPC, Kolkata.

Powergrid requested for short-closing of the pending erection/commissioning activities of PMUs at Monnet & Ind Bharat due to site issue. Powergrid informed that GE had completed the necessary connections at GMR, JITPL & Tenughat stations but due to non-availability of the OPGW communication links, PMU data from these stations were yet to be made available. POWERGRID further requested to use 3 PMUs at Patratu station as spare as per the decision of 163rd OCC meeting.

ERPC Secretariat suggested that considering the site issue at Monnet & Ind Bharat, short closing might be allowed but Powergrid needed to complete the PMU work including its data transfer from GMR, JITPL & Tenughat.

It was decided to take the above matter to the next TCC/ERPC meeting for further discussion.

TCC may approve.

ITEM NO. B19:	Operationalization of 400 kV Durgapur Bus Splitting Scheme

In 41st ERPC Meeting held on 27th August 2019, it was decided that:

i. The split bus scheme of Durgapur PG shall be put in operation.
ii. DVC shall approach Standing Committee for necessary approval for shifting of 315MVA 400/220 kV 3rd ICT to some other location.

Regarding operationalization of 3rd ICT at Durgapur, it was decided that the 3rd ICT shall be kept in standby mode (charged from one end) for a period of fifteen (15) days. ERLDC, West Bengal & DVC shall present their observations in the next OCC meeting scheduled to be held on 20.09.2019 wherein OCC forum shall decide the next course of action. However, during the intervening period, on real time basis, if the necessity arises for the safety, security & stability of the grid, ERLDC shall take action in operationalizing the 3rd ICT.

Accordingly, ERLDC commenced the split bus operation at Durgapur PG with 3rd 315 MVA, 400/220kV ICT in standby mode.

Thereafter, ERLDC vide latter dated 10th September 2019 and mail dated 11th September 2019 informed that in view of sustained high loading on other two 400/220kV ICTs at Durgapur PG, 3rd 315 MVA, 400/220kV ICT at Durgapur PG was taken into service.

In 161st OCC, DVC informed that they had already submitted the proposal to standing Committee for shifting of 3rd ICT at Durgapur (PG) to some other location.

ERLDC informed that hotspot at 220kV Jumper of 400/220kV ICT-II at Durgapur PG was reported on 4th September due to high loading and they had taken 3rd ICT into service keeping 2nd ICT as stand by. One circuit of 220kV Waria-Bidhannagar D/C line was taken out of service to control the power flow in 220kV Durgapur (PG)-Parulia (DVC) D/C line. ERLDC added that, in view of sustained high loading on 3rd 400/220kV ICT at Durgapur PG, 2nd 315 MVA, 400/220kV ICT at Durgapur PG was also taken into service on 10th September 2019.

ERLDC stressed that all the ICTs at Durgapur PG should be in service for the safety and reliability of the Grid.

DVC informed that loading on 1st 315 MVA, 400/220kV ICT at Durgapur PG is very low (50 MW approx..), sometimes reverse power flow was also observed. DVC suggested that 1st 315 MVA, 400/220kV ICT at Durgapur PG be taken out of service.

After detailed deliberation, the following decisions were taken in the meeting:

- As suggested by ERLDC, all the ICTs at Durgapur PG shall be kept in service to meet the Puja demand.
- However, ERLDC shall take necessary decision on real time basis keeping in view the security and reliability of the grid.
- DVC shall carry out a detailed study on power flow pattern through the ICTs with present and future network condition and submit the details to ERPC and ERLDC for further deliberation.
- Thereafter, a separate meeting with representatives from Powergrid, CTU, DVC, WBSETCL, ERLDC and ERPC shall be convened at ERPC for further course of action for both short term and long term.

In 162nd OCC, it was decided that existing arrangement will be continued till further decision on this issue takes place in the above meeting.

In 163rd OCC, ERLDC informed that with split bus arrangement at 400kV Durgapur it has been observed that

1. Power flow through 220kV Durgapur(PG)-Parulia(D) D/C cannot be controlled if all three 400/220kV ICTs are kept in service, along with 220kV Waria – Bidhannagar D/C

2. WBSETCL is aggrieved if 220kV Waria – Bidhannagar D/C is kept off in order to control power flow through 220kV Durgapur(PG)-Parulia(D) D/C

3. If either 400/220kV ICT-2 or ICT-3 is kept off (to control power flow through 220kV Durgapur(PG)-Parulia(D) D/C) , then the other 400/220kv ICT gets heavily loaded.

In view of the above constraints experienced in real time operation, Durgapur(PG) substation is now being operated without sectionalizing the 400kV buses 1 & 3 and 2 & 4 and all the three 400/220 kV ICTs are in service, parallel to each other. Further, one circuit of 220kV Waria – Bidhannagar D/C line is also in operation.

TCC may note.

ITEM NO. B20:	400 kV Split Bus operation of 400 kV Kahalgaon Substation

In the 158th OCC meeting, Bus split operation of 400 kV Kahalgaon substation has been discussed. NTPC has informed that the 400 kV Bus split is ready for operationalization in all aspects. NTPC and PGCIL have informed that the group setting for revised protection setting has been implemented w.r.t. Bus split arrangement at remote ends. OCC decided to monitor the power flows after putting the Durgapur bus splitting in service and further decision on putting the Kahalgaon bus splitting scheme in operation would be reviewed in next OCC Meeting.

The result of Durgapur Bus split trial including power flow was demonstrated in 159th and 160thOCC meeting. It was observed that there is no constraint on the 400 kV network during normal bus split operation of Durgapur substation.

With these experiences of 400 kV Durgapur Bus split, it is desired that 400 kV Kahalgaon Bus split may be operationalized.

In 161st OCC, NTPC has informed that the 400 kV Bus split is ready for operationalization at 400 kV Kahalgaon. But two 400/132kV ICTs are to be erected at 400 kV Kahalgaon and the ICTs are yet to be delivered.

NTPC requested other constituents to spare the ICTs temporarily for an interim arrangement at 400 kV Kahalgaon.

In 163rd OCC, constituents informed that no spare 400/132kV ICTs are available.

OCC advised NTPC to accelerate the erection process of new ICTs at 400 kV Kahalgaon.

NTPC may update.

TCC may note.

ITEM NO. B21:	Declaration of high demand / low demand season for 2020-21

Regulation 42 of CERC (Terms and Conditions of Tariff) Regulations, 2019, pertaining to computation and payment of capacity charge for thermal generating stations, contains the following provisions:

"The capacity charge shall be recovered under two segments of the year, i.e. High Demand Season (period of three months) and Low Demand Season (period of remaining nine months), and within each season in two parts viz., Capacity Charge for Peak Hours of the month and Capacity Charge for Off Peak Hours of the month"

"The number of hours of "Peak" and "Off-Peak" periods during a day shall be four and twenty respectively. The hours of Peak and Off-Peak periods during a day shall be declared by the concerned RLDC at least a week in advance. The High Demand Season (period of three months, consecutive or otherwise) and Low Demand Season (period of remaining nine months,

consecutive or otherwise) in a region shall be declared by the concerned RLDC, at least six months in advance:
Provided that RLDC, after duly considering the comments of the concerned stakeholders, shall declare Peak Hours and High Demand Season in such a way as to coincide with the majority of the Peak Hours and High Demand Season of the region to the maximum extent possible"

In 162nd OCC, ERLDC submitted that an exercise has been done for identification of high demand season for Eastern Region for 2016-17, 2017-18, 2018-19 and 2019-20 (as per draft LGBR for 2019-20). The months with the highest net energy met in Eastern Region are as below:

Year	Months with highest net energy met
2016-17	April, July, August
2017-18	September, March, August
2018-19	August, July, June
2019-20 (LGBR)	August, September, July

Based on the detailed analysis, it is observed that net energy met by Eastern Region is high in the months of July, August and September. Therefore, the months of July, August and September are selected as high demand season for the year of 2020-21 for the Eastern Regional Grid and the same has been posted in ERLDC's website as well as communicated to all SLDCs vide letter no ERLDC/SO/148-Op.Cor./2595-2602 dated 01st October 2019. As no comments have been received from any constituent till date, so July, August and September are selected as high demand season for the year of 2020-21 for Eastern Region.

ERLDC clarified that peak (Max 4 hours) and off-peak hours (rest 20 hours) can be declared 7 days in advance.

ERLDC added that if a generating station's major share allocation is in the other region, that region's demand pattern has to be considered by the station for its availability determination.

MS, ERPC submitted that high demand/low demand seasons are to be considered on Regional demand pattern rather than constituent wise demand pattern. If any constituent has any fruitful suggestions, it can be forwarded to ERLDC by 31st October 2019. But the final decision in this regard will be taken by ERLDC.

Thereafter, ERLDC informed that DVC and West Bengal have communicated their own seasonal demand patterns. However, based on analysis of demand data for last three years, it is observed that Eastern Region as a whole has maximum energy consumption during the period July to September, as already indicated earlier. Therefore **July, August and September** would be considered as the high demand season for the year 2020-21.

*In 163rdOCC, members confirmed **July, August and September** as the high demand season of ER for the year 2020-21.*

TCC may confirm.

ITEM NO. B22:	Load Generation Balance Report (LGBR) of ER for the year 2020-21

As per the IEGC, RPC Secretariat is responsible for finalization of the Annual Load Generation Balance Report (LGBR) both for Peak as well as Off-peak scenarios and the annual outage plan for Generating units/Transmission lines of State and Central Sector of the respective region.

In 161st OCC, all the utilities were advised to plan the load and generation properly for peak & off-peak of the year 2020-21 and submit the plan to ERPC.

The LGBR Meeting for preparation of draft LGBR for 2020-21 is scheduled to be held at 11:00 hrs on 6th December 2019 which will be forwarded to CEA. Thereafter, final LGBR for 2020-21 would be prepared and issued by CEA.

The shutdown schedule of generating units decided in the final LGBR for 2020-21 by CEA shall be strictly followed by the constituents.

Members may note.

ITEM NO. B23:	Preponement of Commissioning of following assets of PGCIL

1. **Preponement of Commissioning of following assets under ERSS XX & ERSS XVIII scheme in ER-I**

It has been planned for installation of following assets under ERSS XX & ERSS XVIII scheme before schedule date of completion (SCOD):

Sl No	Name of Assets	Scheduled Completion	Anticipated DOCO
(i)	400/220 kV, 315 MVA ICT at Banka under ERSS XX	01/05/2020	28/12/2019
(ii)	400/220 kV, 315 MVA ICT at Lakhisarai under ERSS XX	01/05/2020	25/12/2019
(iii)	765kV, 80 MVAR Spare Reactor at Ranchi under ERSS XX	01/05/2020	31/03/2020
(iv)	Re-conductring of 220 kV New Purnea- Purnea line under ERSS XX	01/05/2020	25/12/2019
(v)	Conversion of 63 MVAR fixed line reactor at New Purnea end of one Ckt of New Purnea – Kishanganj 400kV D/C line to Switchable line raector	01/05/2020	25/12/2019
(vi)	2 nos of 765 kV Line bays along-with 240 MVAR switchable line reactors at Ranchi for 765kV Ranchi-Medinipur line (under TBCB) under ERSS XVIII	01/08/2020	31/03/2020

Ahead of schedule commissioning of the above assets may kindly be agreed considering the requirement of grid.

In 163rd OCC, members agreed to consider preponement of the assets from scheduled completion date to actual commissioning date for Sl no (i) to (v) considering the requirement of Grid.

OCC also agreed to consider preponement of the assets from scheduled completion date to actual commissioning date the line for Sl no (vi) considering the requirement of Grid.

In 41st CCM, Members agreed to consider preponement of the assets from scheduled completion date to actual commissioning date in view of Grid requirement.

Matter was referred to forthcoming TCC meeting for further Concurrence.

TCC may approve.

2. Early commissioning of 125MVAR Bus Reactor at Subhasgram and 500MVA ICT-III at Maithon

Under ERSS-XX package, both 500MVA ICT-III at Maithon and 125MVAR Bus Reactor at Subhasgram was expected to be commissioned in April, 2020. The material has already been received at both the substations. Considering the requirement of the grid it is prudent to commission the reactor at Subhasgram S/s which will definitely be beneficial during ensuing winter. Similarly, entire commissioning activity of the supplied 500MVA ICT-III at Maithon can be finished before summer season, if shutdown is provided.

Considering the present load scenario in Subhasgram and Maithon, it is proposed that early commissioning of the said 125MVAR Bus Reactor at Subhasgram S/S and 500MVA ICT-III at Maithon may please be agreed.

In 162nd OCC, Members agreed to the proposal of early commissioning of 125MVAR Bus Reactor at Subhasgram and 500MVA ICT-III at Maithon for the benefit of Eastern Region Grid.

TCC may approve.

3. Preponement of commissioning of 160 MVA 220/132 kV ICT-IV of Malda S/S in place of 50 MVA ICT-IV.

Under ERSS-XX package, existing 50 MVA ICT-IV of Malda SS is to be replaced by 160 MVA ICT. As per Investment Approval, the commissioning schedule of the said ICT was February-2020. In 41st ERPC, the preponement was approved.

The said ICT was charged and declared under DOCO w.e.f. 01.10.19.

TCC may note.

ITEM NO. B24:	Installation of Earth Switches at old stations of NTPC

Powergrid informed that 400KV D/C Talcher-Rourkela and 400KV D/C Talcher-Rengali lines belong to POWERGRID and it is being maintained by POWERGRID. The 400KV bays at the switchyards for both the lines at NTPC end belong to NTPC. There is no line side earth switch available for these lines at NTPC end for earthing of any of these lines during shutdown/maintenance activities. Only one circuit is allowed for shutdown for maintenance of these lines which leads to severe induction due to other circuit in service. Though localized earthing is being done during maintenance by POWERGRID, it is not sufficient for the safety of the working person against induction. In view of this NTPC is requested to install the earth switch for these lines at the earliest.

In 160th OCC, it was informed that earth switches are not available for the transmission lines at old NTPC switchyards viz. Talcher, Farakka and Kahalgaon.

OCC opined that earth switches are mandatory for the safety of the working persons doing the maintenance. OCC advised NTPC to install the earth switches at the earliest.

Talcher, NTPC informed that they are in process of installing earth switches at Talcher.

In 41st TCC, NTPC assured that earth switches for the transmission lines at old NTPC stations shall be made available by December, 2019.

ERLDC advised NTPC to ensure the availability of the earth switches in the recently commissioned stations and in future stations also.

NTPC may update.

ITEM NO. B25:	Long Outage of main Bay of 400KV Indravati (PG)-Indravati (OHPC) at Indravati (PG) Substation

The main Bay of 400KV Indravati (PG)-Indravati (OHPC) line at Indravati (PG) S/s belonging to OPTCL, is out of service since 29th Sept 2018 for replacement of new CB and CT. Although work by OPTCL was started, it is very slow and completely stopped since March'19. Due to non-availability of this bay, ERLDC is not permitting bay maintenance of other POWERGRID circuits i.e. 400KV Indravati-Rengali and 400KV Indravati-Jeypore lines.

OPTCL is requested to expedite the restoration work of the bay and complete the same at the earliest.

In 41st TCC, OPTCL informed that the restoration work of the bay would be completed by December 2019.

OPTCL may update.

ITEM NO. B26:	REPAIR/RECTIFICATION OF TOWER AT LOCATION 79 OF 132KV RANGPO-MELLI D/C LINE AND CHUZACHEN (RANGPO) -GANGTOK TRANSMISSION LINES

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

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

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

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

In 148th OCC, Sikkim informed that State Govt. for approval is pending.

OCC took serious note of delay in tower rectification and referred to TCC for further guidance.

In 39th TCC, Sikkim informed that the proposal for handing over the line to PGCIL is under consideration with the state Government. They are under the process of preparation of cost estimate of part of the line, which is under Sikkim jurisdiction.

In 41st TCC, Sikkim informed that they are planning to hand over the line to PGCIL.

PGCIL informed that they are ready to take over the line but the cost involved in rectifying the defective tower may also be included in the proposal.

TCC advised PGCIL and Sikkim to settle the issue mutually.

Sikkim may update.

TCC may deliberate.

ITEM NO. B27:	Bypassing arrangement of LILO of 400kV Lines at Angul

LILO of Meramundali-Bolangir/Jeypore 400 kV S/C line and LILO of one Ckt of Talcher Meramundali 400 kV D/C line was done at Angul 765/400kV Sub-station, as interim transmission scheme for Phase-I generation projects in Odisha. In the 17th Standing Committee Meeting on Power System Planning of Eastern Region held on 25-05-2015, it was decided to make switching arrangements at Angul substation such that above 400 kV LILOs may be operated either by-passing Angul substation or terminating at Angul substation as and when required, depending upon the power flow condition. The bypass arrangement for these circuits were under implementation at Angul by Powergrid.

The project was approved in 17th Standing committee meeting held on 25th May 2015, however even after more than four years of approval for this small project which doesn't involve any ROW problem, it is yet to be implemented on site.

In absence of this bypass arrangement, severe high loading of 400 kV Angul-Meramandali was observed in case of low generation at Talcher Super Thermal and/or high import from WR making the system N-1 insecure and endangering the grid security in Eastern Region. Commissioning schedule of the bypass arrangement was being deferred many a time, in 162nd OCC meeting POWERGRID confirmed that the bypass arrangement will be commissioned by the month of November 2019, which is again deferred.

Powergrid may update.

ITEM NO. B28:	**UFR Inspection Report of BSPTCL substations**

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

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

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

Substation	Observation
132/33 kV Digha	For 33 kV Pataliputra feeder, the UFR is provided with direct trip wiring and the relay tripped at desired frequency. For all other three feeders, **the UFR relays were not working as the relays got burned due to some DC fault in substation.**

	33 kV Excise colony feeder consists of emergency loads like supply to Airport & Hospital etc.
132/33 kV Mithapur	The UFRs are provided with direct trip wiring and tripped at desired frequency.
	33 kV Pesu-V feeder was charged on no-load. It was found that the feeder was being used only in case of contingency.
132/33 kV Gaighat	The UFRs are provided with direct trip wiring and tripped at desired frequency

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

BSPTCL may update.

ITEM NO. B29:	**Nodal agency under the guidelines for Import/Export (Cross Border) of Electricity 2018**

Ministry of Power vide letter dated 26th November 2019 informed that NTPC Vidyut Vyapar Nigam Ltd. (NVVN) has been nominated as Settlement Nodal Agency for settlement of grid operation related charges with neighbouring countries namely, Bangladesh, Bhutan, Nepal and Myanmar.

TCC may note.

ITEM NO. B30:	**PAYMENT/RECEIPT STATUS FROM VARIOUS POOL ACCOUNTS IN ER**

1) PAYMENT OF DEVIATION CHARGE – PRESENT STATUS

Deviation Pool Account Fund of ER is being maintained & operated by ERLDC, in accordance with the CERC Regulations. As per Regulations 10 (1) of "Deviation Settlement Mechanism and related matters" the payment of charges for Deviation shall have a high priority and the concerned constituents shall pay the indicated amounts within 10 days of issue of statement of Charges for Deviation including Additional Charges for Deviation by the Secretariat of the respective Regional Power Committee in to the "Regional Deviation Pool Account Fund" of the concern region.

The status of Deviation Charge payment as on 18.11.2019 is enclosed at ***Annexure – B30.1***. The current principal outstanding Deviation Charge of BSPHCL, JBVNL and GMR is **₹ 41.18 Cr, ₹ 9.42 Cr, & ₹ 8.68 Cr** respectively considering bill up to 10.11.2019. ERLDC is regularly giving reminders to BSPHCL, JBVNL & GMR to liquidate the outstanding Deviation charges.

Further Sikkim is not paying DSM charges on regular basis and waiting for adjustment with the receivable amount.

Sikkim may please release the Payable amount as per bill within due date instead of waiting for adjustment.

BSPHCL, JBVNL, GMR & Sikkim may confirm the program for payment of outstanding dues.

2) INTEREST DUE TO DELAYED PAYMENT OF DEVIATION CHARGES.

Due to delayed payment of deviation charges in DSM Pool in FY 2018-19, interest was computed for all the DSM Pool Members. ERLDC vide letter No. संदर्भ : पूक्षेभारप्रेके./एम.ओ/यू-11 / 1148 dated 24.06.19 have issued the interest statement for FY 2018-19.

Settlement of delayed payment Interest for 2018-19 for the recipient constituents has been done on 31.05.19. However the statement of interest amount as on 18.11.19 is enclosed in **Annexure-B30.2**. Chuzachen,Sikkim,GMR, NVVN(Nepal), Dikchu, HVDC(Pusauli) and NPGC are requested to clear the dues.

Constituents, who are in payable mode, may please confirm the program for delayed payment of Interest.

3) Non-payment of Deviation Charges by IBEUL

IBEUL is not paying Deviation charges in ER DSM Pool since 12.04.2017 (almost 2.5 years) and present outstanding amount payable by M/s IBEUL towards principal deviation charges is **₹ 112.50429 Lac** considering bill up to 02.06.2019 (However, there is no power flow in the circuits) and **₹ 34.40 Lac** against the delayed payment interest of deviation charges till 18.11.19. A petition in CERC had been filed in July 2018 by ERLDC against M/s IBEUL for violation of Regulation 10 of DSM regulations 2014. Hon'ble commission directed in an order against petition no. 230/MP/2018 dated 16.04.2019 that the Petitioner is at liberty to approach NCLT for appropriate directions in accordance with law. Further, ERLDC has filed a claim in NCLT on 31.05.2019 and the same is admitted by NCLT.

This is for information.

4) REACTIVE ENERGY CHARGES – PRESENT STATUS.

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 18.11.2019 is indicated in ***Annexure – B30.3***. The total outstanding receivable on account of Reactive charges from West Bengal, Bihar & JBVNL is ₹ 78.89 lacs., ₹ 2.71 Lacs & ₹ 33.36 Lacs respectively. WBSETCL is regularly paying the reactive charges.

Again, an amount of ₹ 16436/- on account of Reactive Charges is payable by Sikkim which is not yet paid.

Bihar, SIKKIM & JBVNL may confirm the program for payment of outstanding dues.

ITEM NO. B31:	**Opening of LC by ER constituents for DSM payments**

Clause 10 (4) of CERC Deviation Settlement Mechanism and related matters Regulations, 2014 vide notification No. L-1/132/2013/CERC dated 6th January, 2014 to be implemented from 17.02.2014 is reproduced below:

Quote
All regional entities which had at any time during the previous financial year failed to make payment of Charges for Deviation including Additional Deviation Charges for Deviation within the time specified in this regulations shall be required to open a Letter of Credit (LC) equal to 110% of its average payable weekly liability for Deviations in the previous financial year, in favour of the concerned RLDC within a fortnight from the date these Regulations come into force……..

…….Provided further that LC amount shall be increased to 110% of the payable weekly liability in any week during the year, if it exceeds the previous LC amount by more than 50%.

Unquote

The details of LC amount required to be opened in 2019-20 by ER constituents is given in ***Annexure – B31.*** Letters to this effect has been issued by ERLDC to the defaulting entities.

The LC in respect of BSPHCL, GATI and DIKCHU has already expired and not yet renewed /opened. DVC, NVVN (NEPAL & BD), POWERGRID(ER-I & ER-II) and NPGC have not yet opened/renewed LC. GRIDCO intimated that they opened the LC and send to ERLDC.

The LC of JLHEP & APNRL is going to expire on 30.11.19 and 31.12.19 respectively.

The defaulting constituents may please intimate the latest status.

ITEM NO. B32:	**Trans-national (Bhutan) metering issue.**

1. Reverse polarity of SEM at Deothang and Silicon Factory

As decided in the 157th OCC Meeting of ERPC, shutdown was approved to Motanga S/s subject to availability of SEMs at Deothang and Silicon Factory. Accordingly, SEM of Motanga was shifted to Deothang end and new SEM was installed at Silicon factory. This connection has removed w.e.f 27.09.19 and Deothang end SEM has been used for Kurichu HEP generation and ER-NER energy computation. SEM at Deothang end was connected with reverse polarity since 02.06.19. Matter was already communicated to NLDC & Bhutan and no corrective action has been taken yet.

Bhutan may please update the status.

2. Non-receipt of weekly SEM data associated with MHP

For energy calculation of Mangdechhu HPS (4X180MW) total 16(sixteen) nos of SEMs have been installed at different locations of Bhutan (Mangdechhu, Jigmelling & Yumro). SEM data of Mangdechhu, Jigmeling and Yumro was not received by ERLDC till date. Due to non-receipt of data, validation and meter healthiness has not yet been checked at ERLDC.

Bhutan may please update the status.

ITEM NO. B33:	Non Receipt/Late Receipt of SEM data from Various Locations

As per IEGC (effective from 3.5.2010) Sub-clause-22 of Clause-6.4 (demarcation of responsibilities), all concerned utilities in whose premises SEMs are installed shall take weekly meter readings and transmit the same to RLDC by Tuesday noon for timely issuance of Deviation account Bill. Significant improvement in timely receipt of SEM data has been seen after AMR implementation at various locations and most of the meter data is being received by Tuesday.

i) Late receipt of SEM data : ERLDC is receiving the weekly SEM data by Tuesday noon from maximum locations. However, data is received on Wednesday or later from Gangtok(PG), BSPTCL(Sonnagar New,Begusarai & Biharshariff), WBSETCL (North Bengal, Gazole, Bidhannagar Alipurduar and Rammam) & SIKKIM.

In 40th CCM, all the constituents were requested to adhere to the schedule as per IEGC.

PGCIL, WBSETCL, BSPTCL & Sikkim may update the status.

ii) Non-receipt of Arah, Dehri & Sipara meter data from BSPTCL

Ara(BSPTCL) end meter data of 132 KV Ara(PG) Line and Dehri(BSPTCL) end of 220 kV Pusauli(PG) Dehri & 220kV Gaya(PG) - Dehri Line D/C is not being received by ERLDC due to AMR related issues. SEM data of the above locations were downloaded by ERLDC from AMR. Now, due to AMR problem at Ara and Dehri, BSPTCL was requested to send the data of meter from above locations by downloading at their end till restoration of AMR. M/s TCS has informed verbally that due to network failure, data is not available with AMR.
Again, three(3) nos of SEM are installed at Sipara end for 220KV Patna(PG)-Sipara feeders. Out of three, only one meter is reporting to AMR. BSPTCL was requested for sending the rest of two meters data manually but data is not received. Similarly, Jagdishpur, Rajgir and Nalanda at BSPTCL end are also not sending the meter data on weekly basis.

BSPTCL may please respond and Powergrid may update the program AMR rectification.

iii) Reverse polarity issue of Energy Meter at Begusarai(BSPTCL)

Meter(ER-1344-A) installed at 220 KV Begusarai(BSPTCL)-Purnea(PG) Line-2 at Begusarai end was found to be in reverse polarity w.e.f 04.09.2019.

BSPTCL may update the status.

ITEM NO. B34:	Additional Agenda

PART C: ITEMS FOR INFORMATION

The following items are placed before TCC for noting and compliance:

ITEM NO. C1 :	Collection of modelling data from Renewable as well as conventional energy generators

In 153rd OCC meeting held on 21st January 2019, the constituents were advised to submit the details of renewable power plants of 5 MW and above.

As per CEA latest data, total 1360 MW of RES have been installed in Eastern Region. The breakup of the same is as follows-

Sl No	State/Utility	Installed Capacity(MW)
1	Bihar	341
2	Jharkhand	47
3	DVC	Nil
4	Odisha	521
5	West Bengal	515
6	Sikkim	52

In 158th OCC and 159th OCC meeting held on 27th June 2019 and 19th July 2019 respectively format for sharing of modelling data was shared with all the concerned.

However, even after repeated follow up in each OCC meeting till date data is received only from Odisha for 5 solar power plants with cumulative capacity of 115 MW.

Concerned constituents are requested to share the source wise breakup and dynamic data for 5MW and above power plant as per shared format.

ITEM NO. C2 :	Conversion of Line Reactor as Bus reactor with NGR bypass Scheme

A mail was circulated by ERLDC for collecting the switchability information of the Line reactors and the availability of the required NGR bypass arrangement for converting the line reactor to Bus reactor. It is observed that some of the lines have switchable reactors but NGR by-pass facility is not available due to which reactors cannot be taken into service as bus reactor, in case line is out. In view of upcoming winter season, the bypass arrangement for NGR needs to be commissioned so that switchable line reactors can be kept in service (as bus reactor) even when a line is opened to check the voltage rise.

ITEM NO. C3 :	Submission of Thermal Loading of Transmission line and associated terminal equipment by ISTS licensee

Thermal Loading of Transmission line and associated terminal equipment is one of the most vital data which is utilized for Operation Purpose, calculation of ATC/TTC and various other studies. This information has to be submitted by the transmission utilities. However even after

regular follow-up in past several OCC meetings, significant delay has been observed in submission. Status of submission of data upto first week of December 2019 is as follows:

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

ITEM NO. C4 :	**Latest status of State ATC/TTC declared by states**

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

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

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

2. Present Status of Mentioning about assumptions and LGBR used for ATC/TTC calculation based on the available online information are as follows **:**

SLDC	**ATC/TTC Review**
DVC	No Issue, as ATC/TTC, Constraint and assumption are mentioned properly for both import as well as export TTC
West Bengal	Contsraint and Load/gen Assumption needs to be mentioned
Orissa	No Issue, as ATC/TTC, Constraint and assumption are mentioned properly for both import as well as export TTC.
Bihar	Contsraint and Load/gen Assumption needs to be mentioned
Jharkhand	No Issue, as ATC/TTC, Constraint and assumption are mentioned properly for export TTC.
Sikkim	Constraint and Load/gen Assumption needs to be mentioned

ITEM NO. C5 :	STATUS OF PROJECTS FUNDED UNDER PSDF SCHEMES

Latest status as updated in 161st OCC Meeting is as follows:

SN	Name of Constituent	Name of Project	Date of approval from PSDF	Target Date of Completion	PSDF grant approved (in Rs.)	Amount drawn till date (inRs.)	Latest status
1	WBSETCL	Renovation & up-gradation of protection system of 220 kV & 400 kV Substations in W. Bengal	31-12-14	April 2018 Extended till March 2019	108.6 Cr	37 Cr.	Project has been completed. Final value of the project is 51.22 Cr.
2		Renovation & modernisation of transmission system for relieving congestion in Intra-State Transmission System.	22-05-17	March 2020	70.13	63.12 Cr	Order has been placed . Work is in progress.
3		Installation of switchable reactor at 400kV & shunt capacitors at 33kV	22-05-17	November 2019	43.37	11.69 Cr	Order had been placed and work is in progress.
4		Installation of Bus Reactors at different 400kV Substation within the state of West Bengal for reactive power management of the Grid			71.74 Cr		
5		Project for establishment of reliable communication and data acquisition at different substation at WBSETCL.			31.19 Cr		
6	WBPDCL	Implementation of Islanding scheme at Bandel Thermal Power Station	*10.04.17*	*March 2018*	1.39 Cr	1.25 Cr	*The islanding scheme had been implemented and in operation wef**15.11.2018***
7		Upgradation of Protection and SAS		April 2020	23.48	2.348 Cr	Bid opened and order has been placed. Work started.
8	OPTCL	Renovation & Up-gradation of protection and control systems of Sub-stations in the State of Odisha in order to rectify protection related deficiencies.	11.05.15	31.03.19	162.5 Cr.	37.79 Cr	90% work has been completed. Total expenditure may not exceed 68 Cr.
9		Implementation of OPGW based reliable communication at 132kV and above substations	15.11.17		25.61 Cr.	2.56 Cr	Agreement signed on 03.01.2018. Tender has been floated.
10		Installation of 125 MVAR Bus Reactor along with construction of associated bay each at 400kV Grid S/S of Mendhasal, Meramundali& New Duburi for VAR control &stabilisation of system voltage	27.07.18		27.23 Cr	2.72 Cr	Tender has been floated.
11	OHPC	Renovation and up-gradation of protection and control system of 4 nos.OHPC substations.		*U.Kolab, Balimela, U.Indravati, Burla, Chiplima March 2019*	*22.35 Cr.*	2.235 Cr	Placed the work order.
12	BSPTCL	Renovation and up-gradation of 220/132/33 KV GSS Biharshariff, Bodhgaya, Fatuha, Khagaul, Dehri -on-sone& 132/33 kV GSS Kataiya	11/5/15	31.07.2018	64.02 crore	56.04 crore	90% of work has been completed. The work would be completed by Dec 2019.
13		Installation of capacitor bank at different 35 nos. of GSS under BSPTCL	5/9/2016	31st March 2019	18.88 crore	Nil	Work awarded for all GSS. Work had been completed for 27 substations

14		Renovation & up-gradation of protection and control system of 12 nos. 132/33 KV GSS under BSPTCL.	02.01.17	31st March 2018	49.22 Cr.		75% work completed for seven no. GSS as part of R & M work. Revised DPR is to be submitted for rest 5 no. GSS.
15	JUSNL	Renovation and up-gradation of protection system	*September 2017*	*15 Months*	*138.13 crores*	*39.02 Cr*	LOA placed to Siemens on 28th Sep 2018.
16	DVC	Renovation and upgradation of control & protection system and replacement of Substation Equipment of 220/132/33 kV Ramgarh Substation	02.01.17	01.06.2019	25.96 Cr	2.596 Crore on 01.06.2017	Work awarded for 28.07 Cr. Work would be completed by May 2019.
17		Renovation and upgradation of control & protection system including replacement of substation equipment at Parulia, Durgapur, Kalyaneshwari, Jamshedpur, Giridih, Barjora, Burnpur, Dhanbad and Burdwan Substation of DVC	27.11.17	24 Months from the date of release of fund.	140.5 Cr.	1st installment of 14.05 Cr. received on 21.12.2017	Work awarded for 77.97 Cr.
18	POWERGRID	Installation of STATCOM in ER		June 2018	*160.28 Cr*	*16.028 Cr*	Completed
19	ERPC	Creation & Maintenance of web based protection database and desktop based protection calculation tool for Eastern Regional Grid	17.03.16	Declared GoLive w.e.f 31.10.2017. 5 years on-site operation in progress.	20 Cr.	14.83 Cr.	1) Protection Database Project has been declared 'Go live' w.e.f. 31.10.2017. 2) Two (2) years of on-site operation with all updates completed on 31.10.2019.
20a	ERPC	Training for Power System Engineers	*27.07.18*	*March, 2021*	0.61 Cr.	0.18 Cr.	Out of 8 batches, training for two (2) batches has been completed.
20b		Training on Power market trading at NORD POOL Academy for Power System Engineers of Eastern Regional Constituents	*27.07.18*	*April, 2020*	5.46 Cr.	4.61 Cr.	Out of 4 batches, training for two (2) batches (One each for senior level and middle level executives) has been completed.

ITEM NO. C6 :	**STATUS OF THIRD PARTY PROTECTION AUDIT**

The compliance status of 1st Third Party Protection Audit observations is as follows:

Name of Constituents	**Total Audit Observations**	**Complied**	**% of Compliance**
Powergrid	54	46	85.19
NTPC	16	14	87.50
NHPC	1	1	100.00
DVC	40	26	65.00
WB	68	49	72.06
Odisha	59	42	71.19
JUSNL	34	25	73.53
BSPTCL	16	5	31.25
IPP (GMR, Sterlite and MPL)	5	5	100.00

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

The substation wise status of compliance are available on ERPC website (Observations include PLCC rectification/activation which needs a comprehensive plan).

ITEM NO. C7 :	PAYMENT/RECEIPT STATUS FROM VARIOUS POOL ACCOUNTS IN ER

1) RRAS ACCOUNT ----PRESENT STATUS.

The updated position of Payments to the RRAS Provider(s) from the DSM pool and Payments by the RRAS Provider(s) to the DSM pool as on 02.12.2019 (considering bill up to 10.11.2019) is indicated in ***Annexure – C7.1.*** So far, the amount ₹ 56.30 Cr has been settled under RRAS in ER during FY 2019-20.

2) FRAS Account ----Present Status.

The updated position of Payments to the FRAS Provider (i.e NHPC) from the DSM pool and Payments by the FRAS Provider to the DSM pool as on 02.12.2019 (considering bill up to 10.11.2019) is indicated in ***Annexure – C7.1.*** So far, the amount **₹ 1.32 Lacs** has been settled under FRAS in ER during FY 2019-20.

3) AGC Account ----Present Status.

The updated position of Payments to the AGC Provider (i.e Barh) from the DSM pool and Payments by the AGC Provider to the DSM pool as on 02.12.2019 (considering bill up to 10.11.2019) is indicated in ***Annexure – C7.1.*** So far, the amount **₹ 1.46 Lacs** have been settled under FRAS in ER during FY 2019-20.

4) CONGESTION ACCOUNT - PRESENT STATUS

No Congestion in ER is imposed since 06.12.2012. The status of congestion charge payment after full settlement is enclosed at ***Annexure – C7.4.***

5) STATUS OF PSDF

An amount of **₹ 331.48 Cr** from Deviation and Reactive account have been transferred to PSDF after 40th Commercial sub-committee meeting held on 02.07.19. With this the total amount of **₹ 1295.67 Cr** has been transferred to PSDF so far. The break up details of fund transferred to PSDF (till 18.11.19) is enclosed in ***Annexure- C7.5.***

6) State Transmission Utility Charges and Losses applicable for STOA for FY 2019-20

Name of STU	Intra-State Transmission Charges	TRANSMISSION LOSS (For Embedded entities)
WBSETCL	Rs. 217.85 /MWh[1]	3.10%
DVC	Rs. 143.7 / MWh	2.68%
OPTCL	Rs. 62.5 / MWh	3.00%
JUSNL	*	#
BSPTCL	*	#
SIKKIM	*	#

N.B:
1 Intra State Transmission Charges for West Bengal has been changed to Rs. 217.85/MWh from Rs. 80/MWh w.e.f 17.11.19 as per intimation received from West Bengal SLDC vide letter reference no SLDC/HOW/92C/2019-20/879 dated 15.11.19 and mail dated 16.11.19.

* Indicates rates yet to be furnished by concerned State Utilities. Transmission Charges for use of state network shall be Payable @ Rs.80 per MWh as per subsequent Amendment regulation 2009-dated 20.05.2009.
# Not yet intimated by the State Utility.

State Load Despatch Centre Operating Charges for STOA for FY 2019-20

Name of SLDC	SLDC Operating Charge
West Bengal	**
DVC	**
Odisha	Rs. 2000
Jharkhand	**
Bihar	**
SIKKIM	**

N.B: ** Indicates rates yet to be furnished by concerned State Utilities. Operating charges at the rate of Rs 1000/- per day or part of the day for each bilateral transaction for each of the Regional Load Despatch Centre involved and at the rate of Rs 1000/- per day or part of the day for each
State Load Despatch Centre involved shall be payable by the applicant as per subsequent Amendment regulation 2009-dated 20.05.2009.

ITEM NO. C8 :	Performance of Eastern Regional grid during JUL-19 to NOV-19: ERLDC

1) Real time operation:

During the period under review, power supply position in the region was as under:

	JUL-18	AUG-18	SEP-18	OCT-18	NOV-18	JUL-19	AUG-19	SEP-19	OCT-19
Avg Frq. (Hz)	49.98	49.97	49.97	49.97	49.97	**50.0**	**50.0**	**50.01**	**50.01**
Pk Dmd (MW)	22440	22719	22190	23030	20754	**23401**	**23451**	**23337**	**21759**
Energy Consum. (MU/day)	443	463	454	434	381	**461**	**475**	**463**	**415**
ISGS Gen (MU)	5376	5514	5204	4974	4656	**5416**	**5518**	**5897**	**5270**
Region Gen (MU)	15960	15706	15046	15228	13714	**16760**	**15858**	**16626**	**15347**
% increase in Reg Gen.						**5.0%**	**1.0%**	**10.5%**	**0.8%**

2) System Operational Discipline during the period from July 2019 to October 2019

i) The month-wise energy drawls of ER constituents were as given hereunder:

	JUL-19		AUG-19		SEP-19		OCT-19	
	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
BSPHCL	**2762**	**2758**	**3198**	**3204**	**2898**	**2845**	**2604**	**2562**
JUVNL	**502**	**505**	**496**	**505**	**501**	**500**	**481**	**474**
DVC	**-1220**	**-1224**	**-927**	**-930**	**-678**	**-662**	**-453**	**-406**
OPTCL	**1103**	**1169**	**1155**	**1305**	**669**	**888**	**337**	**544**
WBSETCL	**2174**	**2257**	**2508**	**2589**	**1928**	**1955**	**1345**	**1377**
SIKKIM	**38**	**37**	**40**	**40**	**38**	**39**	**40**	**39**

ii) Frequency & Voltage

Frequency profile for the period during **JUL-19 to NOV-19** is given here under. The frequency mostly remained within the allowable range for the entire period

Month	% of time for which frequency			
	<49.9	**49.9-50.05**	**> 50.05**	**IEGC band 49.9-50.05**
JUL-19	7.50	68.65	23.85	68.65
AUG-19	7.28	72.69	20.04	72.69
SEP-19	4.58	75.24	20.18	75.24
OCT-19	3.18	77.06	19.75	77.06
NOV-19	4.07	73.63	22.31	73.63

iii) Maximum and minimum voltages recorded at some important 400 kV sub-stations were as follows:

	JUL-19		AUG-19		SEP-19		OCT-19		NOV-19	
SUB-STATION/	MAX.	MIN	MAX.	MIN	MAX.	MIN	MAX.	MIN	MAX.	MIN
POWER STN.	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)
(765 KV) NEW RANCHI	793	765	790	762	790	765	792	771	794	770
MUZAFFARPUR	424	382	417	385	417	389	422	391	425	408
BINAGURI	419	397	419	398	421	401	429	402	416	409
JEERAT	423	376	423	381	422	386	423	389	428	389
MAITHON	421	394	423	403	424	405	423	398	421	397
BIHARSHARIFF	421	390	424	396	423	399	420	389	417	388
JAMSHEDPUR	418	392	413	396	415	397	417	401	420	401
ROURKELA	413	397	414	403	413	406	424	389	426	402
JEYPORE	418	403	421	406	424	409	423	404	415	401
MERAMUNDALI	413	389	417	401	416	403	414	397	424	397

SASARAM	420	386	415	384	413	385	420	388	424	391
SUBHASHGRAM	419	367	422	376	420	383	421	383	411	401

3) Constituent-wise demand met is given below:

		JUL-18	**AUG-18**	**SEP-18**	**OCT-18**	**NOV-18**	**JUL-19**	**AUG-19**	**SEP-19**	**OCT-19**
BSPHCL	AVG MAX DMD(MW)	4622	4669	4759	4522	4095	4927	5463	5075	4539
	MU/DAY	90	93	94	87	74	93	108	98	86
JUVNL	AVG MAX DMD(MW)	1131	1161	1155	1141	1178	1219	1221	1251	1213
	MU/DAY	24	24	25	24	25	25	25	25	24
DVC	AVG MAX DMD(MW)	2752	2630	2605	2611	2695	2782	2649	2628	2561
	MU/DAY	70	67	65	66	68	71	68	66	65
ODISHA	AVG MAX DMD(MW)	4027	4798	4516	4710	4262	4162	4373	4309	3850
	MU/DAY	85	103	97	102	88	89	96	99	89
W. BENGAL	AVG MAX DMD(MW)	7842	8110	8053	7383	6516	8351	8136	7949	7129
	MU/DAY	174	156	173	155	127	185	179	174	151

4) Inter-regional energy exchange during the review period were as follows: (Figures in MU)

Region	JUL-19		AUG-19		SEP-19		OCT-19	
	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
NER	-320	246	118	592	79	480	15	382
SR	860	1018	37	487	81	472	699	1187
WR	-1310	-2178	-1655	-2454	-273	-1421	-409	-1354
NR	2406	2537	1938	1740	2276	2454	1881	1814
TOTAL	**1636**	**1623**	**438**	**365**	**2163**	**1984**	**2187**	**2029**

5) Reservoir levels of important hydro stations in ER during JUL-19 to OCT-19 (as on last day of the month) is given below:

STATION	MDDL/ FRL	**JUL-19**	**AUG-19**	**SEP-19**	**OCT-19**
BURLA	590/630 FT	599.69	623.00	630.00	629.97
BALIMELA	1440/ 1516 FT	1461.80	1491.80	1512.60	1515.30
RENGALI	109.7/ 123.5 MTR	111.09	121.82	123.35	124.05
U. KOLAB	844/ 858 MTR	849.06	853.46	856.33	857.25
INDRAVATI	625/ 642 MTR	633.50	640.34	641.03	640.79
MACHKUND	2685/ 2750 FT	2722.50	2745.85	2748.40	2748.60

6) New Element Charging:

JUL-19:

SL NO	Element Name	Owner	Charging Date	Charging Time	Remarks
1	Unit 2 of Mangdhechu (180MW)	DGCL	02/07/19	12:02	Synchronised for first time
2	OPGC #3 (IB TPS stage-II) (660 MW)	OPGC	04/07/19	0:00	COD
3	400 kV Bidhanagar - New Chanditala	WBSETCL	10/07/19	19:36	LILO of 400kV Bidhanagr-Arambag at New-Chanditala
4	400 kV New_Chanditala-Arambag	WBSETCL	16/07/19	14:50	
5	400 KV Patna-NPGC II	PGCIL	17/07/19	20:23	
6	401 KV Patna-NPGC I	PGCIL	18/07/19	17:14	
7	220 kv Dalkhola-Gazole-1	WBSETCL	25/07/19	19:09	LILO of 220kV Malda-Dalkhola-DC at Gazole. Only LILO portion is owned by WBSETCL
8	220 kv Gazole-Malda-1	WBSETCL	25/07/19	19:12	
9	220 kv Dalkhola-Gazole-2	WBSETCL	25/07/19	19:56	
10	220 kv Gazole-Malda-2	WBSETCL	25/07/19	19:57	
11	160MVA ICT 1 at Gazole	WBSETCL	25/07/19	11:54	
12	160MVA ICT 2 at Gazole	WBSETCL	26/07/19	12:23	

AUG-19:

SL NO	Element Name	Owner	Charging Date	Charging Time	Remarks
1	220 KV Keonjhar(PG)-Keonjhar II	OPTCL	03-08-2019	13:49	
2	220 KV Patna-Khagaul ckt II	BGCL	08-08-2019	16:05	
3	220 KV Patna-Khagaul ckt III	BGCL	08-08-2019	16:09	
4	500MVA ICT-II at Rajarhat	PGCIL	15-08-2019	18:28	
5	OPGC-IV (660MW)	OPGCL	21-08-2019	0:00	COD

SEP-19:

SL NO	Element Name	Owner	Charging Date	Charging Time	Remarks
1	400/220KV 500 MVA ICT - 4 at Biharshariff	PGCIL	04/09/19	18:00	First time charged with no load at 17:30hrs of 03/09/19
2	NPGC #1 (660MW)	NTPC	06/09/19	0:00	COD
3	LILO of 220kV Arah-Sasaram(PG)-1 at Nadokhar (Sasaram_new_BSPTCL)	BSPTCL	08/09/19	11:52	Only LILO portion is owned by BSPTCL
4	220 KV Dumka-Govindpur-I	JUSNL	25/09/19	17:35	
5	220 KV Dumka-Govindpur- II	JUSNL	25/09/19	17:35	

6	160 MVA ICT IV at Malda	PGCIL	29/09/19	11:14	

OCT-19: NIL

NOV-19:

SL NO	Element Name	Owner	Charging Date	Charging Time	Remarks
1	400KV New Purnea-Gokarno S/C	PGCIL	10-11-2019	11:56	
2	400 KV Farakka -New Purnea S/C	PGCIL	10-11-2019	14:34	
3	765kV/400/33 kV, 1500 MVA ICT3 at Jharsuguda	PGCIL	27-11-2019	12:55	
4	765KV/400/33KV, 1500 MVA ICT4 at Jharsuguda	PGCIL	23-11-2019	14:02	

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ANNEXURES

Annexure-B4

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

Ref: ER-II/KOL/ULDC /6059

Dated: 03.12.2019

To,

The Executive Engineer,
Eastern Regional Power Committee,
14, Golf Club Road,
Tollygunge, Kolkata -700033

Kind Attn: Sh. J. G. RAO

Sub: - Cost Estimate of implementation of 18 no of OPGW Links as per Agenda of 2nd TeST Meeting held on 26.11.2019.

Dear Sir,

This has reference to discussion in the 2nd TeST Meeting held on 26.11.2019, regarding submission of Cost Estimate of 19 no of OPGW links (2485 KM). The cost Estimate of 18 no of OPGW links of 2485 KM has been calculated to INR 83 Crores, as per following details :-

Estimate for Implementation of Proposed OPGW links as per Agenda of 2nd TeST meeting dtd 26.11.19				
Sr. No	**Sector**	**Size (Km)**	**No of Links**	**Estimated Cost (in Cr)**
1	**POWERGRID**	**1796**	**9**	**60**
2	**DVC**	**379**	**6**	**13**
3	**JUSNL**	**310**	**3**	**10**
		2485	**18**	**83**

It is to mention that Nabhinagar (BRBCL) GS to Sasaram OPGW link of 82 KM approved in 39th ERPC Meeting for implementation in ER – Up-gradation of SCADA/RTU/SAS in Central Sector stations & Strengthening of OPGW Network in ER. Therefore, the same was excluded from the aforesaid Cost Estimate. Link list is enclosed in **Annexure –I.**

This is for your kind information please.

Thanking you.

With Regards

03.12.19

(K.K. Prusti)
GM(HVDC & ULDC) /ER-II

Copy to : 1. Member Secretary, ERPC, Kolkata : For kind information please.
2. CGM(AM & ULDC)/ER-II : ---- do -----.

Estimate for Implementation of Proposed OPGW links as per Agenda of 2nd TeST meeting dtd 26.11.19

Sr. No	Sector	Size (Km)	No of Links	Estimated Cost (in Cr)
1	POWERGRID	1796	9	60
2	DVC	379	6	13
3	JUSNL	310	3	10
		2485	**18**	**83**

Proposed OPGW links as per Agenda of 2nd TeST meeting dtd 26.11.19

Sl.no	Corridor	Selected line for laying OPGW	Voltage level	Length (km)	Total length
1	ER-NR	Gaya -Varanasi - line 1	765	265	**460**
2		Patna- Balia- line 1	400	195	
3	ER-WR	Ranchi - Dharmjaygarh	765	305	**454**
4		Jhasarguda-Dharmjaygarh - line 1	765	149	
5	ER-SR	Jeypore-Gajuwaka	400	221	**221**
6	ISTS Network	~~Nabhinagar (BRBCL) GS to Sasaram*~~	~~400~~	~~82~~	**661**
7		Farakka-Purnea	400	160	
8		Farakka- Sagardighi -Subhashgram	400	301	
9		Maithon (PG) - Durgapur(WB)	400	128	
10		Durgapur(PG) - Sagardhigi (WB)	400	72	
11	DVC	KTPS - Giridh (line 251 & 252)	220	101	**379**
12		Jamuria - Ramkanali (line 90)	132	53	
13		Ramkanali - CTPS (line 60)	132	70	
14		Purulia- Jamsehdpur (line 39 & 40)	132	87	
15		CTPS - Gola (line 6 & 7)	132	67	
16		Howrah(DVC)-Howrah(WB)		1	
17	JUSNL	Daltonganj(JUSNL)-Latehar(JUSNL) LILO at Daltonganj(PG)	220	90	**310**
18		Jodda(OPTCL)-Ramchandrapur (JH)	220	130	
19		Chandil(JH) to Ranchi (PG) upto LILO Point	220	90	
				2485	**2485**

Note - * Link already approved for implementation in ER - Upgradation of SCADA/RTU/SAS in Central Sector stations & Strengthening of OPGW Network in ER (during 39th ERPC meeting)
Hence the same is excluded from the present scope.

Annexure-B11

List of Substation Connected with PGCIL Intranet connection			
Sl No.	**Substation name**	**Uitility**	**Date**
1	Subhashgram	Powergrid	15–Jun–2017
2	Binaguri	Powergrid	20–Jul–2017
3	Malda	Powergrid	06–Jun–2018
4	Kishanganj	Powergrid	15–Jul–2018
5	Siliguri	Powergrid	12–Sep–2018
6	Gangtok	Powergrid	15–Sep–2018
7	Rourkela	Powergrid	03 – Oct – 2018
8	Gaya	Powergrid	25 – Dec - 2018
9	Biharshariff	Powergrid	27 – Dec – 2018
10	Arah	Powergrid	29 – Oct – 2018
11	Jamshedpur	Powergrid	02 – Nov – 2018
12	Rangpo	Powergrid	01 – Nov – 2018
13	Rangpo	Powergrid	05 – Dec – 2018
14	Durgapur	Powergrid	07 – Dec – 2018
15	Jeypore	Powergrid	10 – Dec – 2018
16	Maithon(MTN)	Powergrid	11 – Dec – 2018
17	Pusaul	Powergrid	19 – Dec – 2018
18	Muzaffarpur	Powergrid	20 – Dec – 2018
19	Barh	NTPC	21 – Dec – 2018
20	Kahalgaon	NTPC	21 – Dec – 2018
21	Purnea	Powergrid	24 – Dec – 2018
22	Banka	Powergrid	27 – Dec – 2018
23	Teesta	NHPC	01 – Jan – 2019
24	Rangit	NHPC	02 – Jan – 2019
25	Baripada	Powergrid	15 – Nov – 2018
26	Ranchi	Powergrid	10 – Jan – 2019
27	Talcher	NTPC	16 – Jan – 2019
28	Farakka	NTPC	22 – Jan – 2019
29	Chaibasa	Powergrid	28 – Jan – 2019
30	Dalkhola	Powergrid	28 – Jan – 2019
31	Birpara	Powergrid	29 – Jan – 2019
32	Rajarhat	Powergrid	18 – Apr – 2019
33	Kanti	NTPC	28 – May – 2019
34	Patna	Powergrid	20-Sep-19
35	Behrampore	Powergrid	18-Nov-19

Annexure-B12

Future Procurment of Meters for one next one year.			
Sl. No.	**S/s**	**Sub-Station Details**	**No. of Meters**
		ER-1	
1		400kV D/c Darbhanga – Sitamarhi (New)	4
2		400kV D/c Sitamarhi (New) – Motihari	4
3		LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad Moose) (2.2 KM) line of PGCIL at Chandauti (New)	2
4		LILO of both circuits of Kishanganj – Patna 400kV D/c (Quad Moose) (75 KM) line of PGCIL at Saharsa (New)	2
5	Sitamarhi S/s	400kV Sitamarhi (New) S/s 2X500 MVA ICT	4
6		220kV Sitamarhi (New) S/s 2X200 MVA ICT	4
7		220kV D/C Sitamarhi (New) – Motipur (BSPTCL)	4
8		220kV D/C Sitamarhi (New) – Motihari (New of BSPTCL)	4
9		132 KV D/c Sitamarhi (New) – Sitamarhi	4
10		132KV D/c Sitamarhi (New) – Pupri	4
11		Future bays and ICTs	8
12	Chandauti S/s	400 kV Chandauti (New) 3X500 MVA ICT	6
13		LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad Moose) line of PGCIL at Chandauti (New)	2
14		220kV Chandauti (New) 3X200 MVA ICT	6
15		220 KV LILO of Gaya (PGCIL) – Sonenagar 220kV D/c at Chandauti (New).	2
16		220 KV Gaya (PGCIL) – Sonenagar shall be LILOed at Bodhgaya (BSPTCL)	2
17		132 kV Chandauti (New) 3 no. ICT	6
18		132 kV LILO of Chandauti (BSPTCL) – Rafiganj at Chandauti(New)	2
19		133 kV LILO of LILO of Chandauti (BSPTCL) – Sonenagar at Chandauti(New)	2
20	Saharsa S/s	400 KV Saharsa 2X500 MVA	4
21		400 KV LILO of Kishanganj – Patna 400kV D/c (Quad Moose) line of PGCIL at Saharsa (New)]	4
22		For 400 kV future bays and future ICTs	4
23		220 Kv Saharsa 2X200 MVA ICT	4
24		220 KV D/c Saharsa (New) – Begusarai	4
25		220 KV D/c Saharsa (New) – Khagaria (New)	4
26		For 220 kV future bays and future ICTs	4
27		132 KV D/c Saharsa (New) – Saharsa 132kV	2
28	Darbhanga S/s	400 kV D/c Darbhanga 1X315 MVA ICT	2
29		400 kV D/c Darbhanga – Sitamarhi (New)	4
30		132 KV ICT	1
31		Odisha Project no meer in hand	
32		LILO bypass arrangement at Angul S/s of Talcher - Meramundali ckt2	1
33		LILO bypass arrangement at Angul S/s Meramundali-Jeypore ckt1	1
34			
		ER-2 in hand 49 nos.	
35		400 KV Alipurduar-Jigmeling-D/C	6
36		3rd 315 MVA ICT at Binaguri SS.	2
37		400 KV Jeerat-Subhasgram-D/C.	4
38		400 KV Sgardighi-Subhasgram LILO at Jeerat.	2

39		400 KV Jeerat-New Jeerat-D/C.	4
40		400 KV Kaharagpur-Chanditala LILO at Medinipur.	2
41		765 KV Ranchi-Medinipur-D/C.	4
42		2X1500 MVA ICT at Medinipur.	4
43		2X1500 MVA ICT at New Jeerat.	4
44		3rd 500 MVA ICT at Maithon.	2
45		400 KV D/c Baharampur-Bangladesh	4
		Sub Total	**149**

1	ISGS	Rognichu HEP(Sikkim)	6
		North Karanpura (3x660MW) generation project (of NTPC)	3
	ISGS	North Karanpura – Gaya 400kV D/c (Quad) line (b) North Karanpura – Chandwa 400kV D/c (Quad) line (c) Establishment of 400/220 kV, 2x500 MVA sub-station at Dhanbad	10
		Sub Total	**19**
Total(a)			**168**
Spare @ 20% of total SEM requirment(b)			**34**
Total(c=a+b)			**202**

Annexure-B30.1

SUMMARY OF DEVIATION CHARGE RECEIPT AND PAYMENT STATUS

BILL UPTO 10.11.19 (Week -32 of 2019 - 20)
Last Payment Disbursement Date - 02.12.19

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
WR	210.86159	0.00000	169278.78540	168082.95106	-984.97275
SR	76252.56681	73393.35312	10012.36734	10056.49192	2903.33827
NER	68540.50265	70222.57730	13566.65763	13803.88317	-1444.84911
NR	46094.37150	46782.22208	16370.87199	15455.26741	-1603.45516
BSPHCL	5722.62531	1367.19037	236.78320	0.00000	4118.65174
JSEB	4650.73945	3468.49922	240.56969	0.00000	941.67054
DVC	4231.51263	4283.28776	1897.31286	2058.12130	109.03331
GRIDCO	11038.06154	11038.06177	664.33328	664.33311	-0.00040
WBSETCL	11792.41050	11536.53451	264.06639	267.33635	259.14595
SIKKIM	280.49592	0.00000	357.68623	0.00000	-77.19031
NTPC	7282.13188	7277.18035	263.42954	259.58053	1.10252
NHPC	123.49227	39.91657	1369.48007	1285.81820	-0.08617
MPL	79.84339	79.84339	334.33492	334.33492	0.00000
MTPS STG-II	771.69906	771.69894	2.65114	2.45543	-0.19559
APNRL	882.56053	868.77721	0.00000	0.00000	13.78332
CHUZACHEN (GATI)	88.02638	75.70962	67.67265	66.08648	10.73059
NVVN(IND-BNG)	2229.69237	2214.94937	3.40866	3.40866	14.74300
JIITPL	415.79553	405.72216	51.38963	51.38963	10.07337
GMR	1950.48283	1077.02983	5.37829	0.00000	868.07471
IND BARATH	112.50429	0.00000	0.00000	0.00000	112.50429
TPTCL(DAGACHU)	2182.94689	2122.63381	0.00000	0.00000	60.31308
JLHEP(DANS ENERGY)	641.45766	621.13951	9.65741	9.79538	20.45612
BRBCL(Nabinagar)	529.43616	529.24803	97.12983	97.12993	0.18823
NVVN (IND-NEPAL)	718.84209	719.95678	80.87867	81.99336	0.00000
HVDC SASARAM	24.00025	0.00000	5.35660	0.00000	18.64365
HVDC ALIPURDUAR	27.12438	0.00000	11.35695	0.00000	15.76743
TEESTA-III	1446.62063	1445.10793	576.80878	584.56254	9.26646
DIKCHU	160.02088	160.02107	334.71340	334.71364	0.00005
TASHIDING(THEP)	265.09938	263.26297	178.75088	189.15268	12.23821
OPGC	440.38333	440.38333	3028.92286	3028.92286	0.00000
NPGC	1063.17367	1050.91521	2520.85583	2520.85583	12.25846
TOTAL	**250249.48175**	**242255.22221**	**221831.61012**	**219238.58439**	

		As on	**02.12.19**
Receivable:	Receivable by ER POOL	Payable	Payable by ER POOL
Received	Received by ER POOL	Paid	Paid by ER POOL
"- ve" Payable by ER pool		"+ ve" Receivable by ER pool	

Annexure-B30.2

Deviation Interest Bill due to delay payment during FY 2018-19

As on 18.11.2019

Sl No.	Name of Constituents	Interest amt payable by party (in ₹)	Amount paid/recovered by party(in ₹)	Interest amt receivable by party(in ₹)	Amt paid to the party(in ₹)	Outstanding Interest as on 18.11.19
1	BSPHCL	17962810	17962809.82	0	0	**0**
2	JUVNL	30295597	30295597	0	0	**0**
3	DVC	170088	170088	0	0	**0**
4	GRIDCO	0	0	520	0	**-520**
5	WBSETCL	0	0	1199	1199	**0**
6	SIKKIM	1039941	959498	0	0	**80442**
7	NTPC	16883	16883	0	0	**0**
8	NHPC	0	0	23828	23828	**0**
9	MPL	0	0	8387	7596	**-791**
10	APNRL	270694	270694	0	0	**0**
11	CHUZACHEN	9527	0	0	0	**9527**
12	NVVN(IND-BD)	0	0	1659	1659	**0**
13	JITPL	58	58	0	0	**0**
14	GMR	1265691	0	0	0	**1265691**
15	IND BARATH	3439926	0	0	0	**3439926**
16	TPTCL(DAGACHU)	61182	61182	0	0	**0**
17	JLHEP	12876	12876	0	0	**0**
18	BRBCL	7602	7602	0	0	**0**
19	NVVN(IND-NEP)	8314	0	0	0	**8314**
20	TUL(TEESTA-III)	0	0	17676	17676	**0**
21	DIKCHU	7180	0	0	0	**7180**
22	HVDC-PSL	66976	0	0	0	**66976**
23	HVDC-ALPD	0	0	4410	0	**-4410**
24	TASHIDING	119055	119055	0	0	**0**
25	OPGC	0	0	0	0	**0**
26	NPGC	77385	0	0	0	**77385**
27	KBUNL	24623	24623	0	0	**0**
	Total	**54856407**	**49900967**	**57679**	**51958**	**4949719**

Annexure-B30.3

STATUS OF REACTIVE CHARGES

RECEIVABLE IN ER POOL AS PER PUBLISHED A/C FROM 02.04.18 TO 10.11.19

AS ON 02.12.19

CONSTITUENT	AMOUNT RECEIVABLE IN THE POOL (Rs.)	AMOUNT RECEIVED IN THE POOL (Rs.)	OUTSTANDING (Rs.)
WBSETCL	301383612	293494008	7889604
DVC	2135995	2135995	0
BSPHCL	4902222	4631550	270672
SIKKIM	92567	76131	16436
JUVNL	3873260	536864	3336396
GRIDCO	20175883	20175883	0
TOTAL	332563539	321050431	11513108

Annexure - B31

Current Status of Letter of Credit (LC) amount against DSM charges for ER constituents

Figures in Lacs of Rupees

Sl No	ER Constituents	LC Amount 110% of (B)	Due date of expiry	Remarks
		(E)	(F)	(G)
1	JUVNL	262.49910	12.03.2020	Opened for 221.83872 Lac
2	Sikkim	19.23349	18.09.2020	Opened for 19.23349 Lacs
3	NTPC	132.16667	30.06.2020	Opened for 132.16667 Lacs
4	KBUNL(MTPS-II)	37.77956	16.08.2020	Opened for 37.77956 Lacs
5	APNRL	9.14019	31.12.2019	Opened for 6.51143 Lacs
6	JITPL	6.21265	31.03.2020	Opened for 13.19100 Lac
7	GMR	31.60864	06.06.2020	Opened for 31.60864 Lacs
8	TPTCL(DAGACHU)	97.08656	31.03.2020	Opened for 97.08656 Lacs
9	JLHEP (DANS ENERGY)	5.24331	30.11.2019	Opened for 13.79780 Lacs
10	Tashiding (THEP)	6.96480	27.06.2020	Opened for 2.71519 Lacs
11	BRBCL(NABINAGAR)	5.25547	09.07.2020	Opened for 5.25547 Lacs
12	BSPHCL	165.34279	Expired on 16.11.2018	Letter issued
13	CHUZACHEN (GATI)	2.44609	Expired on 31.03.2019	Letter issued
14	DIKCHU	2.71519	Expired on 20.05.2019	Letter issued
15	DVC	420.68949	Not opened	Letter issued
16	GRIDCO	477.03492	On process	On process
17	NVVN (IND-BNG)	41.02977	Not opened	Letter issued
18	NVVN (IND-NEPAL)	90.02472	Not opened	Letter issued
19	HVDC SASARAM	1.08128	Not opened	Letter issued
20	HVDC-ALIPURDUAR	2.09721	Not opened	Letter issued
21	NPGC	25.39032	Not opened	Letter issued

Annexure - C7.1

SUMMARY OF RRAS CHARGE RECEIPT AND PAYMENT STATUS

BILL from 01.04.19 TO 10.12.19(upto Week -32 of 2019 - 20)

Last Payment Disbursement Date -02.12.19

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
NTPC	3312.89163	1008.31159	5655.96071	3351.38067	**0.00000**
BRBCL (Nabinagar)	443.41886	54.27914	2419.58256	2030.44284	**0.00000**
KBUNL (MTPS-II)	350.06837	41.02032	1568.02662	1258.97857	**0.00000**
MPL	377.65517	168.88210	484.39421	275.62114	**0.00000**
NPGC	78.74273	49.68585	76.98637	36.50017	**-11.42932**
TOTAL	**4562.77676**	**1322.17900**	**10204.95047**	**6952.92339**	**-11.42932**

As on 02.12.19

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

"- ve" Payable by ER pool "+ ve" Receivable by ER pool

SUMMARY OF FRAS CHARGE RECEIPT AND PAYMENT STATUS

BILL from 01-Apr-19 TO 10-Nov-19 (upto Week -32 of 2019 - 20)

Last Payment Disbursement Date -02.12.19

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
NHPC	0.00000	0.00000	1.32191	1.32191	**0.00000**
TOTAL	**0.00000**	**0.00000**	**1.32191**	**1.32191**	**0.00000**

As on 02.12.19

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

"- ve" Payable by ER pool "+ ve" Receivable by ER pool

SUMMARY OF AGC CHARGE RECEIPT AND PAYMENT STATUS

BILL from 01.04.19 TO 10.11.19(upto Week -32 of 2019 - 20)

Last Payment Disbursement Date -02.12.19

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
BARH	291.57738	151.19253	142.59358	4.62042	**2.41169**
TOTAL	**291.57738**	**151.19253**	**142.59358**	**4.62042**	**2.41169**

As on 02.12.19

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

"- ve" Payable by ER pool "+ ve" Receivable by ER pool

Annexure - C7.4

SUMMARY OF CONGESTION CHARGE RECEIPT AND PAYMENT STATUS

Bill upto 07.01.2013
Last Payment Disbursement Date - 13.05.2013

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
BSEB	0.67823	0.67823	0.39118	0.39118	0.00000
JSEB	16.37889	16.37889	2.61323	2.61323	0.00000
DVC	0.00000	0.00000	6.24040	6.24040	0.00000
GRIDCO	5.34488	5.34488	0.00000	0.00000	0.00000
WBSETCL	0.00000	7.42249	4.32834	11.75083	0.00000
SIKKIM	0.65609	6.20909	0.00000	5.55300	0.00000
NTPC	6.93152	6.93152	7.42249	7.42249	0.00000
NHPC	0.70445	0.70445	0.05875	0.05875	0.00000
MPL	4.81694	4.81694	0.85169	0.85169	0.00000
STERLITE	7.70504	7.70504	0.00000	0.00000	0.00000
Pool Balance	0.00000	0.00000	21.30996	21.30996	0.00000
TOTAL	**43.21604**	**56.19153**	**43.21604**	**56.19153**	0.00000

% Realization **As on 31.05.2015**

Receivable:	Receivable by ER POOL	Payable	Payable by ER POOL
Received	Received by ER POOL	Paid	Paid by ER POOL

"- ve" Payable by ER pool "+ ve" Receivable by ER pool

Annexure - C7.5

DETAILS OF DISBURSEMENT TO POWER SYSTEM DEVELOPMENT FUND

Sl No	Nature of Amount	Amount transferred to PSDF (Rs in Lac)	Date of Disbursement	Remarks
1	**Opening Balance (upto 31.12.16)**	**90040.05774**		
2	Reactive Energy Charge	248.26904	31.07.17	Reactive Charges_17-18
3	Reactive Energy Charge	128.44284	29.08.17	Reactive Charges_17-18
4	Reactive Energy Charge	103.22685	26.09.17	Reactive Charges_17-18
5	Reactive Energy Charge	249.14078	31.10.17	Reactive Charges_17-18
6	Reactive Energy Charge	172.20693	30.11.17	Reactive Charges_17-18
7	Reactive Energy Charge	200.00000	15.12.17	Reactive Charges_17-18
8	Reactive Energy Charge	100.00000	05.01.18	Reactive Charges_17-18
9	Reactive Energy Charge	558.45339	06.02.18	Reactive Charges_17-18
10	Reactive Energy Charge	171.95546	06.03.18	Reactive Charges_17-18
11	Reactive Energy Charge	129.35497	04.04.18	Reactive Charges_17-18
12	Reactive Energy Charge	126.21494	07.05.18	Reactive Charges_18-19
13	Reactive Energy Charge	183.31081	06.06.18	Reactive Charges_18-19
14	Reactive Energy Charge	215.58816	05.07.18	Reactive Charges_18-19
15	Reactive Energy Charge	176.54245	03.08.18	Reactive Charges_18-19
16	Reactive Energy Charge	39.54556	06.09.18	Reactive Charges_18-19
17	Reactive Energy Charge	34.03973	01.10.18	Reactive Charges_18-19
18	Reactive Energy Charge	74.57236	05.11.18	Reactive Charges_18-19
19	Reactive Energy Charge	40.66623	04.12.18	Reactive Charges_18-19
20	Reactive Energy Charge	236.89035	02.01.19	Reactive Charges_18-19 & 15-16
21	Reactive Energy Charge	300.04546	05.02.19	Reactive Charges_18-19 & 15-16
22	Reactive Energy Charge	233.27998	05.03.19	Reactive Charges_18-19
23	Reactive Energy Charge	105.79202	04.04.19	Reactive Charges_18-19
24	Reactive Energy Charge	287.48448	03.05.19	Reactive Charges_18-19 & 19-20
25	Reactive Energy Charge	129.69559	03.06.19	Reactive Charges_19-20
26	Reactive Energy Charge	207.83840	04.07.19	Reactive Charges_19-20
27	Reactive Energy Charge	94.91703	02.08.19	Reactive Charges_19-20
28	Reactive Energy Charge	188.53681	02.09.19	Reactive Charges_19-20
29	Surplus DSM amount transferred	32210.51998	24.09.19	DSM Charges_19-20
30	Reactive Energy Charge	173.06004	01.10.19	Reactive Charges_19-20
31	Reactive Energy Charge	273.15002	01.11.19	Reactive Charges_19-20
	Total	**129567.16117**		