



Agenda

for

# 43<sup>rd</sup> TCC Meeting of

## **EASTERN REGIONAL POWER COMMITTEE**

**Date: 23<sup>rd</sup> March, 2021**

**Time: 10:00 Hrs**

**Through MS Teams Platform**

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# EASTERN REGIONAL POWER COMMITTEE, KOLKATA

## AGENDA FOR 43<sup>rd</sup> TCC MEETING

**Date: 23<sup>rd</sup> March, 2021(Tuesday), at 10:00 Hrs**

**Through MS Teams Platform**

<b>ITEM NO.A1:</b>	<b>CONFIRMATION OF THE MINUTES OF 42<sup>nd</sup> TCC MEETING</b>
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The minutes of the 42<sup>nd</sup> TCC meeting held on 12<sup>th</sup> December, 2019 at Port Blair was circulated vide letter no.ERPC/TCC&COMMITTEE/14/2020/10139-10205 dated 1<sup>st</sup> January, 2020.

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

**Members may confirm the minutes of 42<sup>nd</sup> TCC meeting.**

### PART B: ITEMS FOR DISCUSSION

<b>ITEM NO. B1:</b>	<b>Cold Spare transformer requirement for Eastern Region</b>
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CERC had set up a Committee on dated 15.03.2018 consisting of representatives from CERC, NLDC, CEA & POWERGRID under the Chairmanship of the Chief (Engineering) of the CERC to assess the requirement of regional spares including bus reactors, line reactors, ICTs, etc. This would ensure reliability of the grid and reduce downtime in case of any failure/outage.

Based on CERC Committee recommendation, following spare transformers will be needed for Eastern Region:

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

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

In 164<sup>th</sup> OCC, Powergrid informed that earlier they used to keep the regional spare ICTs and the spare ICTs were transported to necessary location as and when required for early restoration during any contingency. POWERGRID explained that, with the present tax regime, they are facing difficulty in transporting the ICT from one state to other state.

In view of above, they are planning to keep one spare ICT for each state. OCC opined that cold spare transformers are required for early restoration of defective transformer during the contingencies.

OCC in principle approved the requirement of 5 Nos of cold spare transformers and referred the issue to CCM for further deliberation.

*In 42<sup>nd</sup> CCM, POWERGRID representative informed that the estimated cost to procure 5 Nos of cold spare transformers for Eastern Region is around ₹ 50 Crores including applicable taxes.*

*Commercial Sub-Committee noted the operational requirement of the spares as approved in the OCC meeting and agreed to the proposal for procurement of 5 nos. of Transformers as cold spares for Eastern Region at an estimated cost of ₹ 50 Crores (approx.) including applicable taxes. It was decided to place this before upcoming TCC for further concurrence.*

**TCC may approve.**

<b>ITEM NO. B2:</b>	<b>Implementation of Automatic Demand Management Scheme (ADMS)</b>
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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 25.11.2016	F <49.9 AND deviation > 12 % or 150 MW
2	DVC	F <49.7 AND deviation 12 % or 150 MW >	Implemented on 17.06.2016	
3	Bihar	F <49.7 AND deviation 12 % or 150 MW >	They would place the order to M/s Chemtrols for implementation.	F <49.9 AND deviation > 12 % or 150 MW
4	Jharkhand	1. System Frequency < 49.9 Hz AND deviation 12 % or 25 MW > 2. System Frequency < 49.9 Hz AND deviation 12 % or 50 MW > 3. System Frequency < 49.9 Hz AND deviation 12 % or 75 MW >	In service from 21 <sup>st</sup> August 2019.	Condition 1: Block I feeders will be selected for load shedding Condition 2: Block I & II feeders will be selected for load shedding Condition 3: Block I, II & III feeders will be selected for load shedding
5	Odisha	1. System Frequency < 49.9 Hz 2. Odisha over-drawl > 150 MW 3. DISCOM over-drawl > (40MW)	10 Months Sent for PSDF approval. It was informed that tender for the work has been floated.	Logic 2 and 3 is AND or OR, in case it is AND then ADMS may not operate when Discom are in schedule but GRIDCO is overdrawing due to less generation at state embedded generators
6.	Sikkim			Sikkim informed that they have submitted a proposal to PSDF Committee for installation of OPGW cables which is under approval stage. Sikkim added that ADMS scheme would be implemented after installation of OPGW

In 42<sup>nd</sup> TCC, TCC opined that uniform logic and settings are to be implemented for all the states. TCC advised to discuss the issue in next OCC Meeting to formulate uniform logic and setting of ADMS.

In 165<sup>th</sup> OCC, ERLDC gave a presentation on the uniform logic. **The proposed logic for ADMS operation is given below:**

**If frequency is less than 49.9 Hz for 3 minutes  
and  
Overdraw/Under injection > 150 MW or 12 %**

In 166<sup>th</sup> OCC, OCC agreed to the ERLDC proposed logic.

OCC advised all the states to implement above logic in ADMS. It was also decided that the performance of the ADMS would be analysed in monthly OCC Meetings, if necessary the logic would be reviewed.

In 168<sup>th</sup> OCC meeting SLDC DVC informed that revised settings of ADMS had been successfully implemented and detailed report had been mailed to ERPC and ERLDC.

In 169<sup>th</sup> OCC Meeting, SLDC Sikkim informed that OPGW work will resume from 1st August 2020 and ADMS would be implemented after installation of OPGW links.

*In 177<sup>th</sup> OCC Meeting, SLDC Jharkhand informed that revised settings had been implemented in their system.*

*SLDC Odisha informed that work order for implementation of ADMS would be placed by 15th April'2021.*

*SLDC Bihar informed that the testing of ADMS with revised settings has been planned in this week.*

**TCC may approve the ADMS logic.**

<b>ITEM NO. B3:</b>	<b>Replacement of GPRS communication with Optical Fiber for AMR</b>
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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 39<sup>th</sup> CCM, Powergrid requested other utilities to share their Fiber 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 40<sup>th</sup> CCM, POWERGRID requests all the constituents to share the available optical fiber 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.

In 41<sup>st</sup> CCM, BSPTCL representative informed the required details of optical fiber 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 fiber network connectivity instead of GPRS for communication AMR system as this will significantly enhance the reliability of the system.

In 42<sup>nd</sup> TCC Meeting, TCC advised all the other constituents to share the details of optical fiber in TeST Meeting scheduled to be held on 20<sup>th</sup> December 2019, so that Powergrid could carry out the configuration of AMR connectivity.

In 42<sup>nd</sup> CCM, POWERGRID informed that the cost estimate for AMR implementation of BSPTCL system has been received. POWERGRID representative intimated that the cost estimate needs to be further updated.

All other constituents were again advised to explore the possibility of Optical fiber network connectivity instead of GPRS for communication with AMR system as this will significantly enhance the reliability of the system.

POWERGRID was advised to submit the updated status in the upcoming TCC.

Thereafter, the required details of optical fiber network connectivity have been received from OPTCL and DVC for configuration AMR Optical connectivity.

However, M/s TCS has confirmed that LAN connection has been done at 40 locations and the status is enclosed in **Annexure-B3**.

*In the 8<sup>th</sup> TeST meeting ERLDC informed that necessary details have been received from all the state utilities except for Sikkim.*

**Powergrid may update.**

<b>ITEM NO. B4:</b>	<b>Procurement of new SEMs</b>
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As per decision of 42nd TCC/ERPC meeting and 41st CCM, the testing and calibration of old and highly-time drifted SEMs are to be carried out by Powergrid and accordingly the priority list of 314 SEMs is prepared by ERLDC and shared in 42nd TCC meeting.

In 168th OCC meeting, Powergrid informed that the matter regarding testing & calibration and time drifting has been taken up with concerned vendors involved in testing and calibration. Powergrid also informed that the vendors are ready for doing the testing however they are not ready to correct time drifting as it is only possible through OEM i.e. L&T. The matter has also been taken up with OEM (M/s L&T), who have confirmed that the heavily time drifted meter shall require to be sent to factory for time correction. Powergrid informed in 168th OCC meeting that time correction of old meters is not possible. Powergrid further added that testing and calibration of old SEMs would cost around Rs 9000 / unit whereas cost of new SEM would be around Rs 12000/ unit.

In 168th OCC meeting, it was decided that since time correction is not possible it would be better to buy new SEMs instead of going for calibration & testing also advised ERLDC to place the requirement of SEMs in next OCC meeting. Accordingly, ERLDC proposed to procure 300 energy meters and the details of the same is already shared in 42nd TCC meeting,

In 169<sup>th</sup> OCC, Powergrid informed that they have already placed the order for 300 energy meters as a repeat order. ERLDC also informed that all the energy meters will be consumed in 2020-21 and there would be a requirement of additional 300 energy meters approximately to replace the old and time drifted SEMs. Powergrid added that still there is a scope to place the repeat order for 180 SEMs in the existing contract. OCC advised Powergrid to process for purchase of 180 SEMs under the existing contract and recommended that post facto approval of the same may be taken in the next CCM/ERPC meeting.

In 43rd CCM, Commercial Sub-Committee members agreed in principle to the proposal for procurement of additional 120 SEMs as per requirement.

*In 177<sup>th</sup> OCC Powergrid informed that they have already awarded contract for procurement of additional 300 SEMs as per terms and condition of existing contract in Jan'2021 and delivery for the same is expected by August'2021.*

**Powergrid may update. TCC may approve.**

<b>ITEM NO. B5:</b>	<b>Renewal of Contract for all installed SEMs of Phase-1 &amp; 2 including AMR of Eastern Region.</b>
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Existing AMC contract period for all installed SEMs of Phase-1 and Phase-2 including AMR has expired on 30-Jun-2020. **Total 656 SEMs and 120 locations (129 DCU) are out of AMC scope since 30.06.2020.** Currently, maximum SEMs are out of AMC support (66% SEM, out of AMC). On a special request from PGCIL, TCS is continuing the AMC support for all 656 SEMs till now but further contract is required to be renewed.



Considering the lockdown period since the end of March-2020, maximum possible support has been provided by TCS and there is no disruption in weekly data availability of SEM.

TCS has submitted a techno-commercial proposal for renewal of their AMC Contract for another 5 years. Proposal value is total **4.98 Cr.** This proposal includes **5 years of comprehensive AMC support for all 656 meters and 129 DCUs including DCU replacement in 60 Locations.** As currently there is no active contract present with TCS for the AMC support, placing of AMC renewal LOA needs to be completed on priority basis. Based on the offer price submitted by TCS, now it is proposed to finalise the AMC contract on single tender basis with M/S. TCS.

### **Brief Scope of Work:**

1. Comprehensive AMC support for the meters (656 SEM and 129 DCU) which have been installed in AMR Phase1 and Phase2.
2. AMC support includes replacement of Hardware which are installed at various Sub Stations (like DCU, Cables, PVC pipes, MOXA converters etc). Hardware replacement will be done as and when required.
3. As all DCU have already covered the service period (05 years plus), DCU replacement will be required. 60 number of DCUs have been considered for replacement in this proposal. (By considering the present scenario and future planning for faulty DCU replacement).
4. If more DCUs are required, then separate proposal will be submitted for the DCU replacement.
5. Connection of replaced meters will be done.

***In view of the above, the proposed value of AMC contract is ₹ 4.98 Cr which includes***

- ***5 years of comprehensive AMC support for all 656 meters and***
- ***129 DCUs including DCU replacement in 60 Locations***

In 170th OCC in-principle agreed for renewal of contract for all installed SEMs of Phase-1 and 2 including AMR since it is very much required in the interest of grid maintenance.

*In 43<sup>rd</sup> CCM Powergrid representative informed that the existing contract period for Support of AMR/AMC of Phase-1 and Phase-2 has been completed on 30-Jun-2020. All 656 SEM and 120 locations (129 DCU) are out of AMC scope since 30.06.2020.*

*Further, he added that offered price of AMC amounting ₹ 4.98 Cr maybe negotiated and the final price would be intimated to ERPC Secretariat.*

*Members of Commercial Sub-Committee recommended for financial approval and also advised POWERGRID to place the revised value of AMC contract after negotiation before ERPC Secretariat.*

**Powergrid may update.**

**TCC may approve.**

<b>ITEM NO. B6:</b>	<b>Establishment of State-of-the-Art Unified Centralized Network Management System U-NMS for ISTS and State Utility Communication Network in Eastern Region</b>
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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 2<sup>nd</sup> TeST meeting held on 26.11.2019 at ERPC Kolkata.

In 42<sup>nd</sup> ERPC Meeting, ERPC accorded in principle approval for go ahead to Powergrid to undertake the UNMS Projects for the Eastern Region subject to the following conditions:

1. PGCIL shall hold separate discussion with each state of ER to understand the NMS system in the respective states if any already existing within the state and to assess the integration requirement including the cost thereof for each state.
2. The details are to be placed by PGCIL in the TeST meeting scheduled to be held in January 2020.
3. After finalization of the scheme the revised cost shall be placed by PGCIL in the next TCC meeting.

In 3<sup>rd</sup> TeST meeting, ERPC Secretariat advised all constituents to provide the data in the format given by POWERGRID for implementation of UNMS System at respective constituents.

In 4<sup>th</sup> TeST meeting, POWERGRID submitted that cost of implementation of UNMS in state sector as per data provided by constituents estimated as below:

- 1) Regional U-NMS: ₹ 97.93 crores
- 2) State sector U-NMS: ₹ 2 crores with breakup as below:
  - a) DVC: ₹ 0.40 crores
  - b) BSPTCL: ₹ 0.40 crores
  - c) WBSETCL: ₹ 0.40 crores
  - d) OPTCL: ₹ 0.40 crores
  - e) JUSNL: ₹ 0.40 crores

The above cost is based on the data provided by constituents, the details of NMS & NEs to be integrated in each constituent.

In 4<sup>th</sup> TeST meeting, MS, ERPC advised POWERGRID to provide the cost sharing for Central Sector portion.

Thereafter, POWERGRID intimated the total estimated cost for UNMS Project for Central sector portion is Rs. 97.93 Crs. which is proposed to be apportioned between the constituents in PoC mechanism.

In 5<sup>th</sup> TeST meeting held on 24.02.2020, all constituents agreed to implement the UNMS system within the state along with the Central Sector UNMS project with a cost estimate as follows:

- 1) Regional U-NMS: ₹ 97.93 crores
- 2) State sector U-NMS: ₹ 2 crores

TeST committee noted the cost involvement by each constituent and referred to Commercial Committee Meeting for approval.

*In 42<sup>nd</sup> CCM, POWERGRID submitted the cost estimate for regional component of U-NMS is ₹ 97.93 crores and the State sector component of U-NMS is ₹ 2 crores.*

*Commercial Sub-Committee, in principle, approved the cost break up of UNMS project as submitted by POWERGRID and referred the issue to TCC.*

*The Cost of Regional U-NMS component i.e. ₹ 97.93 Crs. shall be recovered through tariff as per as per the existing CERC (Sharing of ISTS charges and losses) Regulations, 2020.*

*Subsequently, Powergrid has updated that estimated cost of AMC is Rs. 5.63 Cr per annum for 7 years against Rs. 2.6 Crs for 6 years after Warrantee period estimated earlier. AMC cost have provision of annual cyber security audit , 24x7 manning for managing the system and availability of engineers from contractor on round the clock basis.*

**POWERGRID may explain.**

<b>ITEM NO. B7:</b>	<b>Disruption in real time SCADA, URTDSM, VoIP communication in Eastern Region</b>
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On 10<sup>th</sup> February 2020, at 08:20 PM entire data communication in Eastern region got disrupted which leads to outage of SCADA data, URTDSM data and Voice communication. The matter was informed to Powergrid ULDC team immediately after occurrence of the event.

Powergrid ULDC team has taken prompt action and deployed communication expert towards restoration of communication links in Eastern region. At present, few SCADA, URTDSM and VoIP communication links are yet to be restored. Since data and voice communication are the basic needs for smooth operation of the real time grid, root cause of such unwanted event needed to be identified and addressed with proper remedies.

In 6<sup>th</sup> TeST Meeting, POWERGRID informed that they have submitted the report to ERPC as well as ERLDC through mail on 07<sup>th</sup> July 2020 regarding analysis on data outage on 10.02.2020 and 25.02.2020 which depicted that broadcasting from LDMS at Mejia A site of DVC control area caused data traffic congestion in the OPGW network in whole Eastern Region resulted in partial real time SCADA & URTDSM data and voice failure.

After detailed deliberation, it was decided that a technical committee comprising of the members from POWERGRID, ERPC, ERLDC, DVC, OPTCL, JUSNL, BSPTCL and Sikkim analyse the event and submit a detailed report in next TeST meeting.

TeST Committee advised all the constituents to avoid the usage of internet in the LDMS installed computer at site. All constituents agreed for the same.

In 7<sup>th</sup> TeST Meeting, it was informed that draft report has been prepared and circulated to all the committee members. Recommendations of the technical committee report were presented to the members in the 7<sup>th</sup> TeST meeting.

TeST Committee advised the committee to conduct a separate meeting by 1<sup>st</sup> week of January 2021 for the finalization of the report.

*In the 8th TeST meeting, the Technical Committee submitted the detailed report. The recommendations of the Technical Committee are placed at **Annexure-B7**. The recommendations were discussed in detail and TeST Committee felt that the following recommendations maybe implemented on priority basis so as to avoid such further disturbances:*

<i>SL No</i>	<i>Recommendation</i>	<i>Details</i>
<i>01</i>	<i>*RTU/SAS specification regarding NIC and Ethernet Port.</i>	<i>RTUs/SAS gateway should be having separate NIC for each required Ethernet port</i>
<i>02</i>	<i>Interfacing of Main and Standby channel in MUX</i>	<i>Main and stand by channel interfacing at each site is to be done in separate Ethernet card in MUX</i>
<i>03</i>	<i>Connectivity of LDMS at Substations</i>	<i>LDMS network IP series different from LDCs SCADA RTU network and to be connected to RTU/SAS gateway in dedicated Ethernet port.</i>
<i>04</i>	<i>Unused Ethernet/LAN ports shall be kept administratively down.</i>	<i>Cyber Security norm also mandates that to keep IT/OT system secure in cyber space all unused Ethernet/LAN ports shall be kept administratively</i>

		<i>down. Authorized log in to all the devices connected to the communication network is also mandatory to safeguard OT/IT system.</i>
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*Regarding recommendation No.1, a detailed deliberation took place and the committee advised the utilities to prepare a list of RTU/SAS with the facility of dual network interface cards and a list of the same without the facility of dual network interface cards. All the utilities were advised to implement the recommendation no. 1 wherein the provision for dual network interface cards is available and also to initiate necessary implementation action plan for the RTU/SAS wherein the provision of dual network interface cards is not available. The committee also advised all the utilities to prepare an action plan for implementation of recommendations no 2, 3 and 4.*

*Further, the TeST Committee opined that the recommendations no. 5, 6 9 & 10 maybe implemented after receiving necessary approval from Standing Committee on communication planning.*

**TCC may approve.**

<b>ITEM NO. B8:</b>	<b>Periodic Audit for Communication system in line with CERC regulation &amp; guidelines regarding use of ULDC network for other purposes.</b>
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Recently, disturbance of severe nature had occurred for services (intermittant failure of PMU data, RTU/SAS data, VOIP etc.) leading to difficulty in smooth load-dispatching operation of the ER-Grid by ERLDC. Series of effort had been made during 18th and 19th September, 2020 to trace the root cause of the fault. Some of the services were stopped for checking the communication link healthiness. Though no issue was observed in the communication link, after inclusion of the services again, the system was found to be operating with high latency (delay) in some of the PMUs. Finally, it was observed that one particular machine was sending high amount of packets in the network leading to the cause of the latency in the network. The system was restored to normalcy when the particular machine was withdrawn.

Subsequently, as part of RCF analysis, ERLDC had been communicated to identify the user of that particular machine. However, the same could not be located in RLDC as well as SLDC system. This points towards the possibility of a non-authenticated system/ services being connected to the system for a short time.

In this regard, it is to intimate that certain services required only for the operation of the power system are to be used in the communication network ( CEA Notification 27th February, 2020). The services identified for ISTS & State network are as follows:

1. SCADA (RTU/SAS Data)
2. Inter-Control Centre Communication Protocol (ICCP)
3. Phase Measurement Unit
4. Digital Protection used by Substation
5. Travelling Wave Fault Locator
6. Voce Over Intranet Phone
7. EPAX

8. Automatic (Energy) Meter Reading
9. Automatic Gain Control (of Gen. Stations)
10. Video Conferencing (between users)

Any services other than the above need permission of ERPC. Further, usage of the network for the purpose of internetting, which is a public network, will have a extremely high security threat to the power operation.

As the ISTS communication network of Central Sector is integrated with that of State Network, this type of breach of going beyond the envisaged usage of services by any one user may jeopardise the operation and security of entire national grid. Going by the sensitive nature of this issue, guideline may please be issued at earliest regarding the restricted usage of this network.

Further as per draft communication regulation, 2017 (Cl.10), ERPC is required to frame the procedure to conduct audit of communication system on annual basis. Pending finalisation of the regulation, it is requested to carry out this exercise of identifying the services being used by all users (Including MAC ID and IPs) as a first step towards audit. Guideline to be used in this regard shall help in improving the uninterrupted availability of services.

In 7<sup>th</sup> TeST Meeting, POWERGRID informed that the dedicated communication link which is important for transfer of SCADA data and PMU data was being used for internet access. Powergrid added that it would be high security threat to the power system operation therefore standard operating procedure is needed to be prepared for the utilization of the communication network. The same has to be followed by all the constituents.

TeST Committee opined that since the issue is also related to disruption of real time data, TeST Committee advised to include the issue in the scope of work of the Committee formed for Disruption in real time SCADA, URTDSM, VoIP communication in Eastern Region.

*In the 8<sup>th</sup> TeST Meeting, the Technical Committee submitted the recommendations regarding Periodic Audit for Communication system in line with CERC regulation and Guidelines for utilization of Inter-state OPGW network which are as follows:*

<b>SL No</b>	<b>Recommendation</b>	<b>Details</b>
07	<i>Periodic Audit for Communication system in line with CERC regulation</i>	<i>Periodic audit must be carried out in all sub-stations, generating stations, SLDCs, RLDC, RTAMCs etc. in line with CERC Communication regulation-2017. Detailed procedure and checklist for the audit is attached in <b>Annexure B8.1</b> and <b>Annexure B8.2</b> respectively. Cyber security audit shall also be conducted out periodically for the Communication System as decided by RPC in line with CERC Communication regulation-2017. The audit shall be conducted by CERT-In certified third-party auditors.</i>
08	<i>Guidelines for utilization of Inter-state OPGW network.</i>	<i>Any services, other than the listed OT applications, needs permission of ERPC. Further, usage of the Inter-state OPGW network for the purpose of internet</i>

		<p>access, which is a public network, will have an extremely high security threat to the power operation.</p> <ol style="list-style-type: none"> <li>1. SCADA</li> <li>2. Inter-Control Centre Communication Protocol (ICCP)</li> <li>3. Phase Measurement Unit</li> <li>4. Digital Protection used by Substation</li> <li>5. Travelling Wave Fault Locator</li> <li>6. Voce Over Intranet Phone</li> <li>7. EPAX</li> <li>8. Automatic (Energy) Meter Reading</li> <li>9. Automatic Gain Control (of Gen. Stations)</li> <li>10. Video Conferencing (between users)</li> <li>11. Security Constrained Economic Dispatch</li> <li>12. Disturbance Recorder relay data for centralize acquisition.</li> <li>13. ADMS</li> <li>14. SAMAST</li> <li>15. UNMS</li> <li>16. Centralize monitoring of Firewall in all site locations.</li> </ol> <p><i>Note: Any of the above OT system LAN should not be having connection with IT network.</i></p>
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*The TeST Committee accepted the recommendation and referred the same to TCC for further approval.*

**TCC may approve.**

<b>ITEM NO. B9:</b>	<b>Establishment of additional communication connectivity equipment with neighbouring countries.</b>
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Communication system in eastern region has expanded after implementation of various system expansion projects. The connectivity with neighbouring countries such as Bangladesh, Bhutan and Nepal has also been established and data & voice communication is being taking place.

Considering the security & reliability of internal communication network in the Indian portion/Eastern Region, it is proposed to integrate the communication links with other countries through a separate dedicated communication equipment (SDH) which will be connected with Indian communication network through electrical connectivity.

Apart from the above, it is to mention that presently voice communication with other countries is established as remote subscriber of the exchange of other countries. It is also proposed to consider 01 no. of separate Exchange/PABX at ERLDC dedicatedly for establishment of voice communication with other countries.

In Eastern Region, following will be required for implementation of the above proposed scheme:

1. Supply, erection & commissioning of 04 nos. SDH equipment each at Binaguri&Alipurduar (for Bhutan), Berhampore (for Bangladesh) & (for Nepal).
2. Inter-patching of above new SDH with existing SDH (on Indian network) with electrical connectivity and with SDH in other countries on fiber optic medium.
3. Supply, erection, commissioning & integration of 01 no. dedicated PABX at ERLDC for voice communication with neighboring countries.

Tentative cost for implementation of the above scheme is approx. 6 Crs. Considering data security & importance of reliable communication with neighboring countries; it is proposed to approve the scheme under central sector and recovery of cost through tariff to be determined by CERC.

In 6<sup>th</sup> TeST Meeting, TeST Committee advised all the constituents to study the proposal and send their comments to ERPC and ERLDC.

*In the 7<sup>th</sup> TeST meeting, TeST committee in principle accepted the proposal of Establishment of additional communication equipment connectivity with international countries for smooth real time operation.*

*It was opined that NLDC views are also required as NLDC is the nodal agency for power system operation with international countries.*

*TeST committee accepted the proposal.*

## **POWERGRID may explain.TCC may discuss.**

<b>ITEM NO. B10:</b>	<b>Redundancy of communication links for ICCP between control centers: DVC MCC located at Andul Road to ERLDC BCC at New Delhi</b>
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DVC requested to include underground OFC in Howrah (WB) to Howrah (DVC) under the scope of upcoming project – ‘Strengthening of Inter-regional & Intra-regional OPGW Communication Links for Strengthening of Eastern Region’ and also requested WBSETCL to provide necessary permission & space for laying of Underground OFC and terminal equipment.

In 3<sup>rd</sup> TeST Meeting, Powergrid informed that provision for laying of OPGW communication link between DVC, Howrah and WBSETCL, Howrah is being created in upcoming project. Powergrid further informed that they require necessary help from WBSETCL to make provision of OPGW communication link up to WBSETCL, Abhikshan Bhawan.

In 5<sup>th</sup> TeST Meeting, SLDC West Bengal informed that the space may be available at the Ground Floor for installation of necessary equipment for providing the communication link between DVC, Howrah and WBSETCL, Howrah.

They suggested taking necessary approval from competent authority.

TeST committee referred the issue to TCC meeting.



In 7<sup>th</sup> TeST Meeting, POWERGRID informed that ERLDC had sent a letter to WBSETCL with all the details. WBSETCL informed that space is now available. WBSETCL requested POWERGRID for joint site visit.

*In 8<sup>th</sup> TeST meeting, Powergrid and WBSETCL agreed to carry out the joint site visit by 3<sup>rd</sup> week of March'2021.*

**TCC may approve the above scheme.**

<b>ITEM NO. B11:</b>	<b>Revision of DSM accounts of GRIDCO from 04.05.2016 to 02.12.2018, due to erroneous less Energy reported at Bolangir (PGCIL) end SEM of 220kV Bolangir (PG) -Katapalli line (OPTCL).</b>
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Bolangir (PGCIL) end SEM of 220kV Bolangir (PG) –Katapalli line (OPTCL) tie line was reporting erroneous energy as compared to Katapalli (OPTCL) end SEM bearing meter no NP-7561A from 04.05.2016 to 02.12.2018. Being a tie line, SEM at Bolangir (PG) is used for energy calculation at ERPC, Kolkata. There is a huge difference of energy data of both end meters and the net energy difference is calculated to be 97281.8 MWH for the period from 04.05.2016 to 02.12.2018. The net energy comparison sheet of both side SEM data for all the above weeks and 15 minutes energy data of Katapalli (OPTCL) end SEM for the period has been attached.

Further, SEMs at ICT end at Bolangir (PGCIL) have been considered for energy accounting at ERPC, Kolkata from 02.12.2018 onwards and above energy data was rectified after engagement of the above ICTs SEM at Bolangir PGCIL.

In 40<sup>th</sup> CCM, it was pointed out that GRIDCO/OPTCL should have been vigilant enough to bring this issue to the notice of ERPC/ERLDC when it started occurring. However, after a lapse of a period of about 2.5 years the metering issue is reported to have been resolved.

Further, it was intimated by GRIDCO representative that the metering issue got rectified after subsequent restoration of line after availing shutdown. During discussion, members could not ascertain the reasons for problem in the metering and subsequent resolution of the same.

Hence, it was decided to constitute a committee comprising of SE, ERPC (as Convener) and one representative each from ERLDC, GRIDCO/OPTCL & PGCIL (Odisha Projects) as Members of the committee. Concerned organizations were requested to nominate their representative and intimate the same to ERPC Secretariat within 15 days.

The Committee would:

- 1. Ascertain the reasons for problem in the meter at Bolangir (PG) end of 220kV Bolangir (PG) – Katapalli (OPTCL) line.*
- 2. Rectification of the issue after restoration of line subsequent to availing S/D*
- 3. Modalities for energy accounting, if any.*

The first meeting of the constituted committee was held on 16.07.2019 at ERPC, Kolkata. The committee advised OPTCL to furnish few clarifications in respect of 220KV Bolangir (PG)-Katapalli (OPTCL) line metering issue for further deliberation of the committee. (MoM

attached at **Annexure-B11.1**). Subsequently OPTCL replied to the queries raised by the committee vide email dated 24.07.2019. (**Annexure-B11.2**)

Thereafter, second meeting was convened by the committee on 19.02.2020 at ERPC, Kolkata. The committee agreed for treating this as special case and suggested a methodology for accounting settlement of this issue (Minutes of Meeting is enclosed at **Annexure-B11.3**) and referred the issue for further concurrence in Commercial meeting.

*In 42<sup>nd</sup> CCM, the issue was briefly explained to the members and the committee as constituted in 40<sup>th</sup> CCM suggested a methodology for accounting and settlement based on the decisions taken in the meetings convened on 16.07.2019 & 19.02.2020 at ERPC, Kolkata.*

*After detailed deliberation, Commercial Sub-committee accepted the accounting methodology as proposed by the committee for settlement of the issue of less energy recorded at Bolangir (PGCIL) end of 220kV Bolangir (PG) -Katapalli (OPTCL) line for the period from 04.05.2016 to 02.12.2018.*

*Commercial Sub-Committee advised OPTCL to diligently verify the meter data and bring any discrepancy to the notice of ERPC/ERLDC on time. OPTCL was warned that recurrence of such events in future shall not be entertained in any ERPC forum*

*Accordingly, the DSM account of GRIDCO shall be revised and the payment shall be made from the DSM pool of ER. However, other outstanding dues pending for payment from DSM pool shall be liquidated prior to the payment to GRIDCO on account of this revision.*

*It was decided to place the methodology for accounting and settlement, as suggested by the committee, in TCC for further concurrence.*

**TCC may concur.**

<b>ITEM NO. B12:</b>	<b>Review of Methodology of Reactive Energy Accounting and Billing</b>
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As per Clause 11 & 12 of Annexure-I of IEGC (w.e.f. 03/05/2010)

**Quote....**

11. RPC Secretariats shall also issue the weekly statement for VAR charges, to all regional entities who have a net drawl/injection of reactive energy under low/high voltage conditions. These payments shall also have a high priority and the concerned regional entities and other regional entities shall pay the indicated amounts into regional reactive pool account operated by the RLDC within 10 (ten) days of statement issue, provided that the Commission may direct any entity other than RLDC to operate the regional reactive pool account. The regional entities who have to receive the money on account of VAR charges would then be paid out from the regional reactive pool account, within two (2) working days from the receipt of payment in the Reactive pool account.

12. If payments against the above VAR charges are delayed by more than two days, i.e., beyond twelve (12) days from statement issue, the defaulting regional entity shall have to pay simple interest @ 0.04% for each day of delay. The interest so collected shall be paid to the regional entities who had to receive the amount, payment of which got delayed. Persistent

payment defaults, if any, shall be reported by the RLDC to the Member Secretary, RPC, for initiating remedial action.

..... **Unquote**

As per ERPC weekly Reactive Charge Statement, Reactive Charges are billed to only those states that have to pay the reactive charges in the Reactive pool account as per the computation while total pay-out to the States from the Reactive Pool is reduced to zero.

This is being done as per the decision taken in the “Meeting of the Group for Fixing Methodology for computation of Reactive Energy on the Inter-state Lines” held on 15.09.2006 at ERPC.

The above methodology needs to be reviewed in line with IEGC and harmonized with other regions.

In 42<sup>nd</sup> CCM, the present commercial settlement of reactive accounting is based on the decision taken in the “Meeting of the Group for Fixing Methodology for computation of Reactive Energy on the Inter-state Lines” held on 15.09.2006 at ERPC.

It was decided to constitute a committee comprising of SE, ERPC (as Convener) and one representative each from ERLDC, BSPHCL & WBSEDCL as members to review the existing methodology for Reactive Energy accounting.

Concerned organizations were requested to nominate their representative and intimate the same to ERPC Secretariat at the earliest.

*Subsequently, the Committee met on 4<sup>th</sup> March 2020 to review the existing methodology for Reactive Energy accounting. The Committee recommendations are enclosed at **Annexure-B12**.*

**ERPC Secretariat may present. TCC may concur.**

<b>ITEM NO. B13:</b>	<b>Issue related to Reserve Shutdown (RSD) of ISGS station</b>
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It is to submit that whenever an ISGS Unit is taken under RSD, the stakeholders of ISGS Unit, having lower share has to bear huge loss due to the applicability of fixed charges of respective power share quantum allotted to them. In this case, even if the stakeholder with lower share (minority stakeholder) requires its power share quantum, the same cannot be availed as it is not scheduled because of technical minimum generation limit as per the regulations.

In order to fulfill the minority stakeholder requirement, following alternative options are suggested:

1. In case, a Generator Unit has multiple stakeholders and a few majority stakeholders exceeding 45% of power share (either individually or collectively) decides to take this unit under RSD then as per the existing provisions, the unit is put under RSD and those stakeholders who hold less than 45% of power share (either individually or collectively) are made to pay fixed charges without

consenting to RSD of the Unit. It is proposed that in such cases the Generator should try to fulfill the requirement of minority stakeholders either by offering the balance quantum (out of technical minimum generation) to the minority stakeholders or to explore the possibility of selling the un-requisitioned quantum (out of technical minimum generation) in Open Market. If any loss is incurred in this arrangement, it may be realized from those stakeholders who have requested for RSD.

2. As the unit is taken under RSD at the request of majority stakeholder, the Generator should raise the fixed charges bill of minority stakeholder in the account of majority stakeholder as the minority stakeholder is fulfilling its requirement from other sources and is paying for same.
3. Majority stakeholder may be offered to buy the quantum of power which enables the Generator to meet the technical minimum generation requirement after accounting for the minority stakeholder for the Unit.
4. In case the unit is taken under RSD, the Generator should make arrangement to fulfill the share of minority stakeholder from other sources. The beneficiaries shall continue to bear the capacity charges corresponding to Total DC.

In 43<sup>rd</sup> CCM BSPHCL representative explained the issue faced by Bihar during RSD of a unit where they have minor share allocation. He cited the problem faced by them due to RSD of a unit in FSTPS-I in recent times. He explained that when majority shareholders forgo their entitlement of power from a unit, the unit goes under RSD due to technical minimum requirement. As a result, minority shareholders like Bihar does not get their share of power even if they have put full requisition for their share of entitlement.

He added that in spite of paying the fixed charges and putting requisition for their share of allocated power, they do not get the power which is against principle of natural justice. He proposed a no. of proposals as mentioned in the agenda to address the above issue.

NTPC informed that the fixed charge liability of the beneficiary is due to their long term contract for power requirement and it is as per the regulation.

NTPC added that whenever the minority shareholder requires power from an RSD unit, they can schedule the power from same RSD unit by giving requisition for power up to the technical minimum quantity provided they have requirement for higher quantity of energy. In this case they do not have to pay any fixed charges for additional power scheduled up to the technical minimum quantity of the unit and the fixed charges for additional share would be payable by original beneficiaries.

ERLDC informed that in case of RSD of the unit, the power requirement of the minority shareholders can be arranged in Real Time Market or through URS provision. They added that whenever the minority shareholder put their full requisition of power from an off bar unit, the URS power available in the on-bar unit of the same station get automatically allocated to them.

BSPHCL representative informed that URS power is not a reliable option.

WBSEDCL representative proposed that in case any of the units of a Generating Station goes under RSD due to under requisition of a major beneficiary, the entire surrendered entitlement

of that major beneficiary should be directly curtailed from its real time entitlement instead of proportionate curtailment which is followed at present. ERLDC responded that according to IEGC scheduling procedure it is not possible.

ERPC Secretariat opined that present scheduling and shutdown procedure is as per the Detailed Procedure which was adopted by the CERC and we don't have any clear guidelines from CERC to address the present issue. Further, it was informed that similar concerns were also raised by the Southern Region beneficiaries. Therefore, the issue is in the knowledge of CERC.

After detail deliberation, Members agreed that the issues faced by minority beneficiaries in case of unit RSD are real and need to be addressed. Members opined that there is a need to review the detailed operating procedure for RSD to suitably address the concerns of minority beneficiaries.

### **TCC may discuss.**

<b>ITEM NO. B14:</b>	<b>Nomination of Settlement Nodal Agency for Cross Border Transactions</b>
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NVVN has been nominated as Settlement Nodal Agency (SNA) vide MoP order dated 26th Nov,2019 as per the clause 8.8 of the guide lines for Import/Export (Cross Border) of Electricity 2018.

It is primarily for settlement of Grid operation related charges with neighboring countries like Bangladesh, Nepal, Bhutan and Myanmar. However, the functions of Nodal agency and modalities of settlements has not yet been finalized.

In 42<sup>nd</sup> CCM, NVVN representative was present in the meeting. He drew the attention of the members in the meeting regarding the order issued by MoP, GoI wherein NVVN has been designated as Settlement Nodal Agency for import and export(Cross Border) of power. In this connection he informed that NVVN is already a nodal agency as far as Bangladesh and Nepal transactions are concerned. Further, in case of Bhutan, the hydro stations like Tala, Chukha, and Kurichhu & Mangdechhu do not come under DSM regulations. However, Dagachhu HEP is included within the ambit of DSM with TPTCL acting as the nodal agency.

Based on the MoP order, NVVN proposed to become the nodal agency for Dagachhu transactions w.e.f. 01.04.2020 and take up the scheduling and accounting responsibility w.r.t. Dagachhu HEP.

The proposal of NVVN was discussed in the 42<sup>nd</sup> Commercial sub-Committee meeting. Commercial Sub-Committee advised NVVN to enter into necessary agreement with TPTCL to take over all the responsibilities of nodal agency from TPTCL for Dagachhu HEP transactions. NVVN was also advised to complete the necessary registration process with ERLDC (POSOCO). After this, all matters pertaining to scheduling, payment & settlement shall be taken care of by NVVN. It was decided to place this agenda in forthcoming TCC meeting for further approval.

However, on request of NVVN-SNA-Bhutan, ERLDC has registered them and issued acceptance letter on 13.05.2020.

*As per the decision taken in 43<sup>rd</sup> CCM, MS, ERPC wrote a letter dated 07.10.2020 to NVVN for updating the status of agreement with TPTCL to ERPC secretariat.*

*NVVN vide letter dated 10.03.2021 to TPTCL has sought confirmation for execution of revised SNA Agreement. The same is placed at **Annexure-B14**.*

### **NVVN & TPTCL may update the status.**

<b>ITEM NO. B15:</b>	<b>Performance of Constituents of ER after implementation of DSM (5<sup>th</sup> amendment) Regulations of CERC</b>
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DSM (5<sup>th</sup> Amendment) Regulations, 2019 was notified by Honorable CERC on 28th May, 2019. The First part of said amendment has been implemented w.e.f. 3rd June, 2019 and Second part of the 5<sup>th</sup> Amendment has been implemented w.e.f. 01.12.2020. Accordingly, DSM account is being prepared and issued by ERPC Secretariat as per 5<sup>th</sup> Amendment Regulations.

ERPC Secretariat shall give a brief presentation on the performance of various constituents after the implementation of the latest regulations and also give a comparative analysis of sign change clause 7(10)(a) & 7(10)(b) which have been implemented w.e.f. 03.06.2019& 01.12.2020 respectively.

### **ERPC Secretariat may give a presentation.**

### **TCC may discuss.**

<b>ITEM NO. B16:</b>	<b>Payment/receipt status from various pool accounts in ER</b>
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#### **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 05.03.2021 is enclosed at **Annexure – B16.1**. The current principal outstanding Deviation Charge of BSPHCL and JBVNL is ₹ 38.06 Cr & ₹ 15.09 Cr, respectively considering bill up to 21.02.2021. ERLDC is regularly giving reminders to BSPHCL and JBVNL and others defaulting entity to liquidate the outstanding Deviation charges.

### **BSPHCL & JBVNL may confirm the program for payment of outstanding dues.**

## 2) Interest due to delayed payment of Deviation Charges.

- a) Due to delayed payment of deviation charges in DSM Pool in FY 2020-21 up to Q3, interest was computed for all the DSM Pool Members. The statement of interest amount as on 31.12.21 is enclosed in **Annexure-B16.2**. Jharkhand, Dikchu, NVVN (IND-BD), APNRL, GMR, JLHEP, HVDC Alipurduar, Tashiding HEP, OPGC (GRIDCO), NPGC and KBNUL are requested to clear the dues.
- b) CERC has approved detailed procedure for Ancillary Services Operations vide ref no.: 1/10/2012- Reg.Aff.(REC-Gen.)/CERC dtd 21st November, 2016. As per para 13.9 & 13.10 of detailed procedure Interest for delay payment for RRAS Providers has been calculated for FY 2020-21. The details are enclosed in **Annexure-B16.2**.

## 3) Reactive energy charges – present status.

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 05.03.2021 is indicated in **Annexure – B16.3**. The total outstanding receivable on account of Reactive charges from Bihar, JUVNL and SIKKIM are ₹3.46 Cr., ₹ 2.27Cr respectively. WBSETCL and GRIDCO are regularly paying the reactive charges. Again, an amount of ₹3.26 lakh on account of Reactive Charges is not paid by SIKKIM.

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

<b>ITEM NO. B17:</b>	<b>Opening of LC by ER constituents for DSM payments</b>
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Clause 10 (4) of CERC Deviation Settlement Mechanism and related matters Regulations, 2014 vide notification No. L-1/132/2013/CERC dated 6<sup>th</sup> 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 2020-21 by ER constituents is given in **Annexure – B17**. Letters to this effect has been issued by ERLDC to the defaulting entities.

LC of BSPHCL, DVC, GRIDCO, WEST BENGAL SIKKIM, MTPS STG-II, NVVN (NEPAL & BD), JITPL, BRBCL, POWERGRID(ER-II), NHPC, JLHEP, NPGC and TASHIDING has already expired and not yet renewed /opened. LC of JUVNL and POWERGRID(ER-I) is going to expire on 08.04.21 and 31.03.2021 respectively.

**Concerned constituents may please intimate the latest status.**

**TCC may guide.**

<b>ITEM NO. B18:</b>	<b>Outstanding dues from E&amp;PD, Govt. of Sikkim</b>
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The Energy and Power Dept., Govt. of Sikkim has an agreement with WBSEDCL for purchase of power at a tariff which is the generation cost of Rammam Hydel project of WBSEDCL. WBSEDCL also purchase power from Govt. of Sikkim at a consumer mode. The quantum of power sale by WBSEDCL is considerably higher than the power purchase from Govt. of Sikkim whereas the tariff rate of WBSEDCL sale is considerably very low in comparison to the tariff of power purchase by WBSEDCL from Govt. of Sikkim.

The Govt. of Sikkim has been drawing power from WBSEDCL on regular basis but reluctant to pay the bill within due time. As a result, the outstanding dues from Govt. of Sikkim stands Rs.31.38 Cr.(approx) upto the consumption month of January,2020. On the contrary, WBSEDCL used to pay Govt. of Sikkim, their dues within due date since long but without having any alternative and no response from the Govt. of Sikkim started adjusting the power purchase bill with the outstanding dues from Mar, 2017 to till date. As a result, the net due from Govt. of Sikkim now stands for Rs.30.74Cr. after all adjustments.

The evidence in support of the claim of WBSEDCL is duly annexed with this agenda where it shows the detail calculation of outstanding dues, some of the correspondences out of many with Govt. of Sikkim regarding realization huge number of dues.

WBSEDCL, finding no other remedy to realize the dues from Govt. of Sikkim and as the matter is now reached an alarming state, appeal before the Hon'ble ERPC to intervene into the matter as Govt. of Sikkim as well as WBSEDCL both are constituent members of ERPC.

*42<sup>nd</sup> CCM, WBSEDCL representative intimated that despite repeated efforts they could not resolve this bilateral issue of outstanding payment from Sikkim. Hence, they were compelled to bring this issue to Commercial Sub-Committee. He informed that Govt. of Sikkim has ₹ 30.74Cr. outstanding dues to WBSEDCL.*

*However, due to the absence of Sikkim representative the issue could not be discussed.*

*It was decided to place this agenda in the forthcoming TCC meeting.*

**TCC may guide.**



<b>ITEM NO. B19:</b>	<b>Issues related to 132 kV Patratu(DVC)-PTPS(JUSNL) D/C tie lines</b>
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DVC informed that there are two tie lines between 132kV Patratu(DVC) S/s and PTPS(JUSNL) S/s.

JUVNL approached DVC for clearance of diversion of the above Tie ckts for construction of Ash-dyke area of new 2X800MW PTPS Project(a JV with NTPC). As per Commercial Clearance, it was decided that 132kV multi-ckt tower will be used for the diversion job, where one side(i.e. left side from existing location no. 14 to gantry at PTPS end) will be utilized for DVC's Transmission lines and the other side for JUSNL's transmission lines.

Accordingly, the Tie-ckt 85(5c) was normalized through the top left side of the Multi-ckt tower on Dt.-09-05-2020. But the other tie-ckt(84(6C)) could not be normalized till date because of concerns raised by JUSNL on the proposed scheme of construction clearance. The issue has been explained in detail enclosed at **Annexure-B19.1**.

*In 172nd OCC meeting, it was decided to convene a separate meeting with DVC and JUSNL to arrive at an amicable resolution.*

*Accordingly a special meeting was convened on 10th November, 2020 to discuss the issue. The minutes of the meeting is enclosed at **Annexure-B19.2**.*

*After detailed deliberation in the meeting, no consensus could be arrived and the issue was referred to TCC for their guidance.*

#### **TCC may guide.**

<b>ITEM NO. B20:</b>	<b>Occurrence of repeated grid incidents at 400/220 kV Meramundali S/s</b>
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In January and February 2021, repeated tripping incidents occurred at transmission lines connected to 400/220 kV Meramundali S/S. Among them 400 kV Meramundali – Mendasal – 2 and 400 kV Meramundali – Bolangir S/C tripped five(5) and 3(three) times respectively. Major reasons for tripping is short circuit fault, spurious DT signal received and over voltage at Meramundali end.

In 96<sup>th</sup> ER PCC meeting, PCC advised OPTCL for proper maintenance of lines and substation equipments connected to Meramundali S/s.

*In 97<sup>th</sup> ER PCC meeting, PCC advised OPTCL for checking the reason for rise in healthy phases at Meramundali S/S during short circuit fault at connecting transmission lines.*

#### **OPTCL may explain.**

<b>ITEM NO. B21:</b>	<b>Installation of Earth Switches at old stations of NTPC</b>
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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 shut down 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 160<sup>th</sup> 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 41<sup>st</sup> 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.

*In 42<sup>nd</sup> TCC, NTPC confirmed that earth switches for the transmission lines at old NTPC stations shall be made available by December, 2019.*

**NTPC may update.**

<b>ITEM NO. B22:</b>	<b>Repair/rectification of tower at location 79 of 132kv Rangpo-Melli D/C line and Chuzachen (Rangpo) -Gangtok transmission lines</b>
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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 137<sup>th</sup> 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 37<sup>th</sup> 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 145<sup>th</sup> OCC, Sikkim informed that the proposal had been sent to State Govt. for approval.

In 148<sup>th</sup> 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 39<sup>th</sup> 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 41<sup>st</sup> 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.

*In 42<sup>nd</sup> TCC, Sikkim informed that Govt. of Sikkim has turned down the proposal of handing over the line to PGCIL. Sikkim added that now they are planning to rectify the defective tower.*

*TCC advised Sikkim to rectify the defective tower at the earliest to avoid major devastation.*

*Sikkim added that they would rectify the defective tower by June 2020.*

**Sikkim may update.**

**TCC may deliberate.**

<b>ITEM NO. B23:</b>	<b>Approval of Schemes approved in the 1<sup>st</sup> meeting of ERPC-TP held on 14.02.2020</b>
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**I.** Number of ISTS schemes were agreed for implementation in the 1st meeting of Eastern Regional Power Committee (Transmission Planning) held on 14.02.2020 at Kolkata. Subsequently, the same were approved in the 3rd meeting of NCT held on 26th-28th May 2020. Thereafter, MoP vide Office Memorandum (OM) dated 25.09.2020 has approved implementation of some of those schemes under RTM by POWERGRID:

**(i) Eastern Region Strengthening Scheme- XXIV (ERSS - XXIV)**

- Shifting of 400/220kV ICT-1 from Durgapur-A section to Durgapur-B section

**(ii) Transmission system for power evacuation from Arun-3 (900MW) HEP, Nepal of M/s SAPDC - Indian Portion**

- Sitamarhi (POWERGRID) - Dhalkebar (Nepal) 400kV D/c (Quad) line (Indian portion)
- Extension of Sitamarhi (POWERGRID) Substation: 2 no. of 400kV line bays at Sitamarhi (POWERGRID) for termination of Sitamarhi (POWERGRID) - Dhalkebar (Nepal) 400kV D/c (Quad) line

***Note:** As per MoP's OM, cost of this project is to be borne by M/s SJVN Arun-3 Power Development Company (Pvt.) Ltd. (SAPDC Ltd., subsidiary of M/s SJVN Ltd.). Necessary agreement for recovery of transmission charges may be signed with M/s SJVN Ltd. and/or M/s SAPDC Ltd.*

## II. Other Schemes approved/ in-principally agreed under ISTS:

- (i) **Upgrading of bay equipment at Kahalgaon switchyard matching with capacity of Kahalgaon-Patna 400kV (Quad) D/C line**
- (ii) **Modification in ISTS scheme namely – “Associated Transmission System for Nabinagar-II TPS (3x660MW)”.**
  - Termination of one of the circuits in existing 80MVAR bus reactor bay along with conversion of existing 80MVAR bus reactor as switchable line reactor
  - Installation of originally identified switchable line reactor for this circuit as switchable line reactor in one circuit of Barh – Patna line.
- (iii) **Modification in ISTS scheme namely – “Eastern Region Strengthening Scheme-III (ERSS-III)”**
  - Installation of 50MVAR line reactors in both circuits of Sasaram – Daltonganj 400kV D/c line (line length-196km) at Daltonganj end.
- (iv) **Upgradation of existing 220/132kV Sahupuri S/s to 400/220kV, 2x500MVA – Under intra-state by UPPTCL**
  - Upgradation of existing 220/132kV (1x160+2x200) MVA, Sahupuri Substation (in Uttar Pradesh - NR) to 2x500 MVA, 400/220 kV level.
  - LILO of both circuits of Biharsharif - Varanasi 400kV D/C (Quad) ISTS lines at 400 kV Sahupuri (GIS) - 30 kms along with 50/63 MVAR line reactor at Sahupuri end.
- (v) **Modification in scheme for limiting of fault current level at 400kV level at Farakka generation switchyard under ERSS-XXIII**
  - Additional OPGW in Kahalgaon – Durgapur 400kV D/c line formed after bypassing of lines at Farakka
  - Bay upgradation at Kahalgaon and Durgapur ends associated with bypassing of lines at Farakka

**Members may concur.**

<b>ITEM NO. B24:</b>	<b>Approval of Schemes approved in the 2<sup>nd</sup> meeting of ERPC-TP held on 30.09.2020</b>
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Number of ISTS schemes were agreed for implementation in the 2<sup>nd</sup> meeting of Eastern Regional Power Committee (Transmission Planning) held on 30.09.2020 through Video Conference. The agreed schemes are mentioned below:

- (i) **Connectivity system for Teesta-IV HEP (520MW) of NHPC**
  - LILO of Teesta-III HEP – Rangpo 400kV D/c (Quad) line at Teesta-IV HEP generation switchyard – *under ISTS*.
  - Establishment of 400kV Teesta-IV generation switchyard – *by NHPC*
    - Generation step-up to 400kV level

- 04 nos. of 400kV line bays for 400kV 2xD/c (Quad moose) lines (LILO lines mentioned above)
- 1x80MVA, 420kV bus reactors along with bay

**(ii) Eastern Region Strengthening Scheme-XXV (ERSS-XXV)**

- Creation of 220kV GIS bus at Banka (POWERGRID) S/s
- 400/220kV, 2x500MVA ICTs along with associated bays (220kV bays in GIS)
- 2 nos. of 220kV GIS line bays at Banka (POWERGRID) for termination of Banka (POWERGRID) - Goradih (Sabour New) 220kV D/c line of BSPTCL
- Space for future 220kV GIS bays: 6 no.

**(iii) Re-conductoring of Siliguri-Bongaigaon 400kV D/c Twin Moose line with Twin HTLS conductor, reconductoring of Alipurduar – Salakati (Bongaigaon) 220kV D/c line with Single HTLS**

- The scheme is being implemented in ISTS as North Eastern Region Strengthening Scheme-XII (NERSS-XII) under RTM by POWERGRID.
- Subsequently, due to the technical difficulties (mainly associated with limitation in existing tower) in achieving the approved current rating through HTLS and considering power flow requirement as per studies, it was agreed in a meeting taken by CEA on 21-12-2020 (minutes enclosed at **Annexure-B24**) that the following ampacity (**mentioned in column E below**) of HTLS conductors for above lines meets the technical requirement:

Sl. No.	Name of transmission line	Ampacity of existing ACSR sub-conductor (A)	Ampacity of Single HTLS Conductor as per MoP order dated 25.09.2020 (A)	Ampacity of single HTLS sub-conductor agreed considering technical constraints and system requirement (A)
(A)	(B)	(C)	(D)	(E)
1	400kV D/C Siliguri-Bongaigaon line (Twin ACSR Moose)	707	1596	1400
2	220kV D/C Alipurduar-Salakati line (Single ACSR Zebra)	451	1596	1100

**Members may concur.**

<b>ITEM NO. B25:</b>	<b>Status of downstream 220kV or 132kV network by STUs from the various commissioned and under-construction ISTS substations</b>
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Numbers of ISTS sub-stations have been commissioned and some are under construction for which the downstream system is being implemented by the STUs. Based on the information provided by the states, updated information on planned/under-construction downstream system is given below, however, the same be verified/updated by the respective states:

**A. Existing substations:**

**(a) Rajarhat 400/220kV S/s**

- i. Rajarhat (POWERGRID) – New Town AA3 220kV D/c – Commissioned
- ii. Rajarhat (POWERGRID) – New Town AA2 220kV D/c – Dec ‘21
- iii. Rajarhat (POWERGRID) – Barasat/Jeerat 220kV D/c – Dec’21

**(b) Subashgram 400/220kV S/s**

- i. Subashgram (POWERGRID) – Baraipur 220kV D/c line

**(c) Pandiabil 400/220kV S/s**

- i. Pratapsasan (OPTCL) – Pandiabil (POWERGRID) 220kV D/c – Mar’21

**(d) Bolangir 400/220kV S/s**

- i. LILO of one ckt of Sadeipalli – Kesinga 220kV D/c at Bolangir – Jun’21

**(e) Keonjhar 400/220kV S/s**

- i. Keonjhar (POWERGRID) – Turumunga (OPTCL) 220kV D/c – Jun’21

**(f) Daltonganj 400/220/132kV S/s**

- i. Daltonganj (POWERGRID) – Latehar 220kV D/c – Dec’21
- ii. Daltonganj (POWERGRID) – Garhwa 220kV D/c – Dec’21
- iii. Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132kV D/c – Dec’21

**(g) Chaibasa 400/220kV S/s**

- i. Chaibasa (POWERGRID) – Jadugoda (JUSNL) 220kV D/c

**(h) Chandauti 400/220/132kV S/s – Commissioned – Feb’21**

- i. LILO of Gaya (POWERGRID) – Sonenagar 220kV D/c at Chandauti (New)
- ii. LILO of Chandauti (BSPTCL) – Rafiganj 132kV S/c at Chandauti (New)
- iii. LILO of Chandauti (BSPTCL) – Sonenagar 132kV S/c at Chandauti (New)

**B. Under Construction substations:**

**(a) Sitamarhi 400/220/132kV S/s – Expected in March’21**

- i. Sitamarhi (New) – Motipur (BSPTCL) 220kV D/c line
- ii. Sitamarhi (New) – Raxaul (New) 220kV D/c (Twin Moose) line
- iii. Sitamarhi (New) – Runni Saidpur 132kV D/c line

iv. LILO of Benipatti – Pupri 132kV S/c at Sitamarhi (New) – Mar’21

**(b) Saharsa 400/220/132kV S/s – Expected by Mar’21**

- i. Saharsa (New) - Khagaria 220kV D/c line
- ii. Saharsa (New) - Begusarai 220kV D/c line
- iii. Saharsa (New) - Saharsa 132kV D/c line formed by LILO of Saharsa - Banmankhi and Saharsa - Uda Kishanganj 132kV S/c lines

**(c) Dhanbad 400/220kV S/s**

- i. LILO of 220 kV Tenughat - Govindpur D/c line at Jainamore and Dhanbad

**Members may please update.**

<b>ITEM NO. B26:</b>	<b>Default in payment of outstanding dues by beneficiaries- POWERGRID</b>
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The total outstanding dues of ER beneficiaries as on 11.03.2021 are detailed below. Please note that these figures include both PoC as well as non-PoC outstanding amounts.

**Rs. in Cr.**

SI No.	DIC	45-90 days dues	>90 Days dues
1	SOUTH BIHAR (SBPDCL)	62.79	0.00
2	NORTH BIHAR (NBPDC)	45.33	1.49
3	BSPTCL *	9.30	3.39
4	JHARKHAND	16.41	0.00
5	BANGLADESH	7.96	0.00
6	DANS ENERGY	2.86	0.00
7	SHIGA ENERGY	2.59	0.00
8	GATI INFRASTRUCTURE	0.43	0.00
9	JUSNL *	0.40	10.36
10	IND BARATH	0.00	219.33
11	OPTCL *	0.00	55.24
12	ODISHA	0.00	23.57
13	GMRKEL *	0.00	24.46
14	OPGC *	0.53	18.40
15	VEDANTA*	0.00	17.63
16	TEESTA URJA LIMITED *	0.00	8.50
17	TEESTA VALLEY *	0.00	5.75

\* Non PoC only

**Concerned members may update.**

<b>ITEM NO. B27:</b>	<b>Opening of Letter of Credit-POWERGRID</b>
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The following beneficiaries have to open/enhance LC as listed below:

**(Rs in Crores)**

<b>DIC Name</b>	<b>LC Required</b>	<b>LC Available</b>
East Central Railways-BRBCL 900 MW LTA	39.84	0.00
SOUTH BIHAR	48.03	15.27
NORTH BIHAR	40.25	9.73
ODISHA	49.78	45.62
South Eastern Railway_RGPPL_Jhk	3.28	0.00
JHARKHAND	14.66	11.77

Opening/Enhancement of LCs are being continuously pursued with the DICs. The beneficiaries may renew LC for the requisite amount in favour of POWERGRID.

**Beneficiaries may update the status of LC opening.**

<b>ITEM NO. B28:</b>	<b>Additional Agenda if any.</b>
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**Additional agenda, if any with the permission of Chair.**



## PART C: ITEMS FOR INFORMATION

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

<b>ITEM NO. C1 :</b>	<b>Declaration of high demand/low demand season for 2021-22</b>
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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 171st OCC meeting, ERLDC informed that they have identified two scenarios for the declaration of high demand season for 2021-22. In the first scenario they have taken into consideration of the hydro generation for which May, June and August come under the high demand season. Excluding the hydro generation in the second scenario, they have identified April, May, and June months are the high demand season.

ERPC Secretariat and ERLDC opined that since the availability of thermal generation is important when hydro generation is not available to the Grid, it would be advisable to declare April, May and June months as the high demand season for 2021-22.

Thereafter Odisha informed that due to high ambient & peak summer requirement they have considered April, May, and June as the peak demand season for their state.

West Bengal informed that they have considered May, June, and August as the peak season demand.

After detailed deliberation, OCC declared **April, May and June** months as the High demand Season for 2021-22 considering the demand pattern of the entire Eastern Region.

**TCC may note.**

<b>ITEM NO. C2 :</b>	<b>Automatic Under Frequency Load Shedding (AUFLS) Scheme</b>
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In 9<sup>th</sup> 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 2<sup>nd</sup> 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.

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
<b>Bihar</b>	98	99	99	101	397
<b>Jharkhand</b>	61	62	61	62	246
<b>DVC</b>	134	135.5	136	137	542.5
<b>Odisha</b>	181.5	183.5	184	186	735
<b>WB &amp; CESC</b>	345.5	350	350	354	1399.5
<b>Total</b>	<b>820</b>	<b>830</b>	<b>830</b>	<b>840</b>	<b>3320</b>

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

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

In 164<sup>th</sup> OCC, all the SLDCs and STUs were advised to implement the revised AUFLS scheme by 1<sup>st</sup> week of January 2020 and submit a report to ERPC Secretariat and ERLDC.

In 166<sup>th</sup> OCC, JUSNL informed that revised AUFLS scheme had been implemented in Jharkhand except at Latehar feeder.

Odisha, CESC, Bihar and DVC informed that revised AUFLS scheme had been implemented. Report received from Odisha is enclosed at **Annexure-C2**.

In 167<sup>th</sup> OCC, all the utilities confirmed that the revised AUFLS scheme had been implemented.

**TCC may note.**

<b>ITEM NO. C3 :</b>	<b>Review of System Protection Scheme (SPS) of HVDC Talcher-Kolar Bipole</b>
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NLDC vide letter dated 21<sup>st</sup> October 2020 informed that the SPS associated with HVDC Talcher-Kolar Bipole was implemented long back in the year 2003 as per system requirements at that time. The addition of high-capacity AC lines in the corridor parallel to this HVDC link have strengthened the ER-SR & WR-SR corridors for exchange of power to/from southern region (SR). The newly commissioned HVDC Raigarh-Pugalur Pole-I has also been

commissioned recently. Presently, in cases of HVDC Talcher-Kolar Pole blocking, SPS as per design operates with load disconnection in SR and generation backing down/outage in ER.

In view of strengthening of transmission system as stated above, the scheme has been reviewed in consultation with RLDC's. NLDC requested for ER constituent's view for finalization of the SPS scheme.

In the 173<sup>rd</sup> OCC Meeting, NLDC explained the revised SPS scheme in details and pointed the out followings:

- GMR and JITPL thermal power plants are radially connected to 765/400 kV Angul pooling station and 765/400 kV Angul station is strongly connected to western region and southern region through 765 kV lines. The tripping of HVDC Talcher-Kolar does not cause any constraint in evacuation of GMR and JITPL. Therefore, the SPS for 600 MW generation backing down at these stations would not be required and the same may be disabled.
- During the study, it was observed that 400 kV Talcher-Meramundali D/C Lines are getting heavily loaded (beyond 874 MW) after the tripping of HVDC Talcher-Kolar in some cases. Therefore, the loading of 400 kV Talcher-Meramundali lines may also be included in the SPS logic (SPS 1000 and SPS 450) installed at Talcher STPS, NTPC. The proposed revised SPS logic in brief is as follows:

**The flow on 400 kV Talcher-Meramundali-1 (or) 400 kV Talcher-Meramundali- 2 is  
more than 874 MW  
(and)  
SPS 1000 triggered (or) SPS 450 triggered**

NTPC Talcher informed that, as per the existing SPS logic 800 MW generation backing down is happening by tripping one of the running unit and unloading two units by 150 MW each, when both the poles are getting blocked. NTPC requested to consider generation backing down of the generating units instead of tripping of the units.

NLDC explained that immediate response might not be achieved by generation backing down which would lead to cascade tripping of the transmission lines. Therefore, they have considered unit tripping instead of generation backing down for successful operation of SPS. NLDC further informed that since 400 kV Talcher-Meramundali Line loading has also been included in the SPS logic, chances of meeting the SPS criterion and its operation would be exceedingly rare.

After detailed deliberation, 174<sup>th</sup> OCC decided the following:

- OCC in principle agreed to revised SPS
- NTPC shall implement the revised SPS logic at Talcher STPS
- The logic of the SPS scheme shall be prepared by ERLDC in consultation with NLDC
- The SPS logic details shall be forwarded to NTPC for implementation

Further in 175<sup>th</sup> OCC meeting,

ERLDC explained the logic for revised SPS scheme through a presentation. The same is enclosed at **Annexure C3**. The logic in brief is given below:

- 400 kV Talcher-Meramundali Line current logic would have three I<sub>max</sub> settings out of which one will be active depending on the season.
- The I<sub>max</sub> current settings have been calculated based on thermal ratings of the lines.
- This Talcher-Meramundali Current logic would be ANDed with existing TalcherKolar HVDC SPS logic.

NTPC informed that they are ready to implement the revised SPS logic at their end. They added that the ground return mode determination by the SPS logic would be same as it was in the existing logic.

ERLDC informed that for determination of ground return mode condition using the existing logic involves a delay of around 75 sec. They viewed that the time delay can be reduced if a specific signal indicating ground return mode is made available at TSTPS, NTPC end.

Powergrid informed that exclusive signal for ground return mode is not available at their end. After detailed deliberation OCC agreed to implement the revised S

In 176<sup>th</sup> OCC meeting, NTPC informed that logic has been built and the same will be implemented in Unit # 3 DCS during opportunity shutdown of unit# 3.

### **TCC may note.**

<b>ITEM NO. C4 :</b>	<b>Implementation of Automatic Generation Control in Eastern Region</b>
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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 01<sup>st</sup> August 2019 and operationalized since 23<sup>rd</sup> August, 2019.

Vide order dated 28<sup>th</sup> 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

*In 8<sup>th</sup> TeST Meeting members updated the status as follows:*

<i>Sl No</i>	<i>Station</i>	<i>Status of Communication link from plant substation to PGCIL node</i>	<i>Status of communication system integration from unit to plant substation</i>	<i>Target date for implementation of AGC at plant</i>
1	Farakka STPS - I & II	Both links established	Pending	May 2021
2	Kahalgaon STPS – II	Both links established	Pending	Completed and running since Dec 2020
3	Barh STPS	Both links established	Installed	Running since August 2019
4	NPGC, Nabinagar	Links from Gaya and Patna has been established.	NPGC, Nabinagar informed that OPGW is available but end equipment need to be procured and installed to establish communication link from their station to NLDC. NTPC further informed that they have place order for providing the end equipment.	May 2021
5	Maithon Power Limited	One link established. Other link, Ranchi-Maithon(RB) would complete by March, 2020.	Completed	
6	Talcher STPS – I	Both links established.	Contract awarded to ABB and mobilization of team is under progress	May 2021

7	Kahalgaon STPS – I	Both links established.	NTPC informed that they approaching CERC for exemption. NTPC informed that issue is being taken up with O&M for maintenance of old equipments.	
8	Nabinagar Thermal Power Project – BRBCL	Only one link Sasaram-Nabinagar OPGW installation is pending. It would take two years for completion.		May 2021
9	Darlipalli STPS	Communication established.	Integration is in progress	May 2021
10	Teesta – V	One link established		
11	Farakka STPS – III	Link established		May 2021
12	MTPS Stage – II (Kanti)	Link established		May 2021
13	Rangit HPS	One link established		

### Members may note.

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

In 42<sup>nd</sup> TCC, WBPDCCL informed that they have already collected offer from Siemens for implementation of AGC and they are awaiting the concurrence from SLDC.

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

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

Summary of status of implementation:

State	Station/Unit	Action plan
DVC	Mejia unit#7 &8	<ul style="list-style-type: none"> <li>NIT has been floated.</li> <li>Order placement 30<sup>th</sup> March 2020</li> <li>Commissioning of AGC 31<sup>st</sup> July 2020</li> </ul>
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	Joint meeting between SLDC, Odisha and OPGC was held wherein, it was decided to visit Barh, NTPC and NLDC to get acquainted with the AGC implementation and formulate a plan.

### Members may note.

<b>ITEM NO. C5 :</b>	<b>Reconductoring work of 400 kV Rangpo-Binaguri D/C lines</b>
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In 42<sup>nd</sup> TCC, Powergrid updated that reconductoring of 11 km of both the circuits out of 110 km line had been completed (9.3 km in West Bengal and 1.7 km in Sikkim).

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

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

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

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

*In 177<sup>th</sup> OCC, Powergrid updated that reconductoring of 2.5 km of both the circuits out of 110 km is pending for completion. They informed that the line would be charged by 29<sup>th</sup> March, 2021.*

**This is for kind information.**

<b>ITEM NO. C6 :</b>	<b>Restoration of 400 kV Barh-Motihari D/C and 400 kV Motihari-Gorakhpur D/C lines</b>
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In 42<sup>nd</sup> TCC Meeting, TCC suggested that MS, ERPC should convene a separate meeting at ERPC secretariat for addressing the issues regarding early restoration of supply at Motihari.

In 176<sup>th</sup> OCC Meeting, DMTCL informed that all the tower erection has been completed except one special tower in 400 kV Motihari-Gorakhpur Section which is expected to be completed by February, 2021. They added that stringing of conductors is also under progress and the lines will be restored by 2nd week of March, 2021.

In 177<sup>th</sup> OCC Shutdown Meeting, the shutdown of 400 kV Barh-Motihari D/C and 400 kV Barh-Gorakhpur D/C line was allowed for permanent restoration of 400 kV Barh-Motihari D/C and 400 kV Motihari-Gorakhpur D/C lines.

*In 177<sup>th</sup> OCC Meeting, DMTCL informed that both the lines would be restored by March, 2021.*

**This is for kind information.**

<b>ITEM NO. C7 :</b>	<b>Review of the PSS Tuning of Generators in Eastern Region</b>
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Power System Stabilizer (PSS) tuning is an ongoing exercise in Eastern regional grid after observation of various low frequency oscillation from time to time in the grid. In line with this, OCC has decided that all generating plants in eastern region will submit their PSS tuning plan to ERLDC/ERPC and the test reports for validation.

A list of the generating units where PSS tuning has been completed till March'2021 is enclosed at **Annexure-C7.1**.

Further, a draft procedure for PSS tuning was placed in 169<sup>th</sup> OCC Meeting and all the generators were advised to submit their comments.

In 171<sup>st</sup> OCC, the draft procedure for PSS tuning was finalized.

A list of the generating units where PSS tuning activity is pending is attached at **Annexure-C7.2**.

In view of the above, all generating utilities who have not yet submitted their PSS tuning plan are advised to submit the same to ERLDC/ERPC in compliance to CERC and CEA regulation on Power System stabilizer and associated tuning for reliability and security of the Grid.

*In 177<sup>th</sup> OCC Meeting, all the generating utilities were advised to go through the Annexure C 7.2 and submit the plan for PSS tuning to ERPC secretariat/ERLDC.*

**TCC may note.**

<b>ITEM NO. C8 :</b>	<b>Payment/receipt status from various pool accounts in ER</b>
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**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 05.03.2021 (considering bill up to 21.02.2021) is indicated in **Annexure C8.1**. So far ₹ 191.63 Cr has been settled under RRAS in ER during FY 2020-21.

**This is for information to the members.**

**2) 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 05.03.2021 (considering bill up to 21.02.2021) is indicated in **Annexure C8.1**.

**This is for information to the members.**



### 3) Status of PSDF

An amount of ₹ 12.13 Cr from Reactive account have been transferred to PSDF after 43<sup>rd</sup> Commercial sub-committee meeting held on 25.02.20. With this the total amount of ₹ 1335.32 Cr has been transferred to PSDF so far. The break up details of fund transferred to PSDF (till 10.09.20) is enclosed in **Annexure-C8.2**.

*This is for information to the members.*

### 4) State Transmission Utility Charges and Losses applicable for STOA for FY 2020-21

Name of STU	Intra-State Transmission Charges	TRANSMISSION LOSS (For Embedded entities)
WBSETCL	Rs. 243.92 /MWh	3.10%
DVC	Rs. 143.7 / MWh	2.68%
OPTCL	Rs. 250 / MWh	3.00%
BSPTCL	Rs. 253 / MWh	3.00%
JUSNL	*	#
SIKKIM	*	#

N.B:

\* 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.

### State Load Despatch Centre Operating Charges for STOA for FY 2020-21

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.

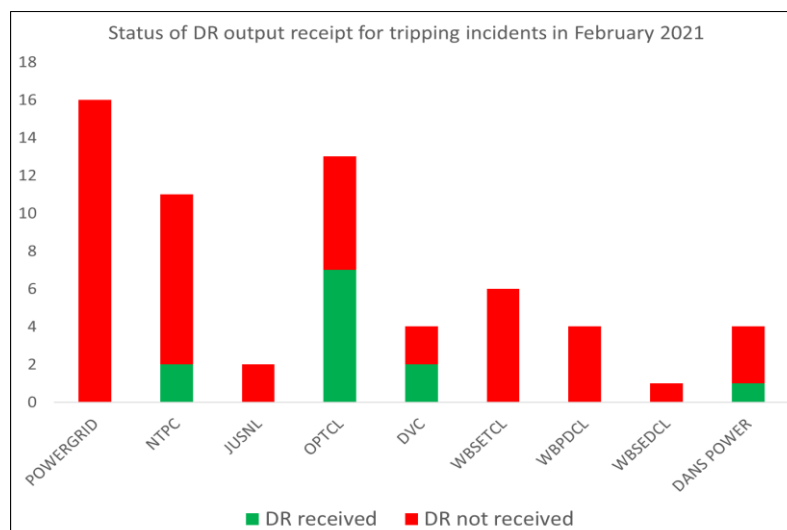
Operating charges at the rate of Rs 1000/- per day or part of the day for each bilateral transaction for each of the Regional Load Despatch Centre involved and at the rate of Rs 1000/- per day or part of the day for each

State Load Despatch Centre involved shall be payable by the applicant as per subsequent Amendment regulation 2009-dated 20.05.2009.

**This is for information to the members.**

**ITEM NO. C9 :****Non-receipt of data DR/EL output for triggering of grid elements in Eastern Region**

As per IEGC section 5.2 (r), all users, generating, transmission, distribution utilities are to share DR/EL output with ERLDC within 24 hrs from the occurrence of tripping incidents. But DR/EL output are yet to be received at ERLDC even one month after the occurrence of the incident. Status of receipt of DR/EL for the tripping incidents in February 2021 is shown below.



Without DR/EL output and preliminary/detailed observation from substation/generating station owner, it is difficult for ERLDC to analyze any tripping incident.

All the transmission utilities/ generating utilities/ SLDCs may share both main 1 and main 2 DR outputs in comtrade format in time.

### Members may note for compliance.

**ITEM NO. C10 :****Non-availability of SCADA data of state sector stations**

SCADA/EMS system has been installed at SLDC and RLDC and real time operator are performing grid management activity based on real time data available with this SCADA system. But, it is observed that several important stations under state SLDC jurisdiction in Eastern Region are not reporting to respective state SLDC (as shown in table below) and hence ERLDC is also not getting data through ICCP.

Area of Responsibility	No of station without data telemetry	No of station commissioned without data integration
OPTCL	10	08
WBSETCL	06	01
JUSNL	12	00
BSPTCL	06	00

Table: Area wise no of station without data telemetry as on 10-03-2021.

Details of stations, which are not reporting or yet to be integrated at SLDC is shown below

**Table: list of important 220kV and above station without data telemetry as on 10-03-2021**

AOR	Station level (In kV)	Current Status	Deliberation in last TeST meeting	Comments
WBSETCL	Dharampur 220 Kv	Yet to be integrated.	<i>WBSETCL informed that M/s Schneider engineers are not coming to Dharampur due to covid-19 pandemic.</i>	
	Egra 220 kV	Yet to be integrated	<i>WBSETCL informed that discussion related to cost estimate is in progress with M/S Chemtrols.</i>	
	Bantala 220kV	Not Available	<i>WBSETCL informed that technical issues of SDH are observed at Bantala.</i>	M/s CommTel informed that data is not available due to breakdown of their equipment.
	Alipurduar 220kV	Yet to be integrated	<i>WBSETCL informed that the work is getting delayed to ROW issue.</i>	
	Rishra 220kV	Not Available since July 2020		
	DPL TPS_WB 220 kV	Not Available since Jan 2021		
JUSNL	Hatia New 220 kV	Not Available	<i>JUSNL informed that issue at Hatia is already solved.</i>	
	Patratu 220 kV	Not available since Feb 2020	<i>JUSNL informed that control room issue present at Patratu would be rectified soon.</i>	
	Tenughat 220kV	Not available since Feb 2020	<i>JUSNL informed that issue at Tenughat would be rectified by March 2021</i>	
	Chandil 220 kV	Not available since Sept 2019	<i>JUSNL that PLCC installation is under progress at Chandil, Jamtara ,Garwa, Deoghar and Kendposi and issue would be</i>	
	Jamtara 132kV	Not Available		
	Garwa 132kV	Yet to be integrated		
	Deoghar 132kV	Not Available		

	Kendposi 132 kV	Not Available	<i>rectified by July 2021</i>	
	Lalmatia 220 kV	Not Available	<i>JUSNL informed that issue at Lalmatia would be rectified by March 2021.</i>	
	Giridih 220 kV	Not Available	<i>JUSNL informed that link issue is present at Giridih and would be rectified soon.</i>	
	Godda 220 kV	Not available since Jan 2021	<i>JUSNL informed that issue at Godda would be rectified by March 2021</i>	
	Jasidih 220 kV	Not available since August 2020	<i>JUSNL informed that issue at Jasidih is already solved.</i>	
OPTCL	Malkangiri 220 kV	Data integration and database creation not yet done.	<i>OPTCL informed that data base creation is completed for Malkangiri, Jeypatna and Kashipur substations.</i>	
	Jaypatna 220			
	Kasipur 220			
	Damanjodi 220		<i>OPTCL informed that the issues would be resolved by Sep 2021.</i>	
	Cuttack 220			
	Utkal AI 220			
	Narsingpur 220kV	Station commissioned at 220kV without data telemetry	<i>OPTCL informed that pending issues at Narsingpur S/S would be resolved by May 2021</i>	
	Bargarh 220	Station commissioned at 220kV without data telemetry	<i>OPTCL informed that the issues would be resolved by Sep 2021.</i>	
	Paradeep 220 kV	Not available		
	Vedanta 220 kV	Not available since Nov. 2020		
BSPTCL	Gopalganj 220	No available since July 2019	<i>BSPTCL informed that issue at Gopalganj is already solved.</i>	
	Samastipur New 220	Not available since 22-02-2021	<i>BSPTCL informed that M/S GE was already informed for issues at Samastipur.</i>	
	Khagaul 220 kV	No available since Jan 2021	<i>BSPTCL informed that issue at Khagaul is already solved.</i>	
	Motipur 220	No available since	<i>BSPTCL informed that</i>	

	kV	05-03-2021	<i>M/S GE was already informed for issues at Motipur.</i>	
	Laukhai 220 kV	No available since 13-02-2021	<i>BSPTCL informed that M/S GE was already informed for issues at Laukhai.</i>	
	Dumraon 220 kV	No available since 22-01-2021	<i>M/S ABB was also informed for issue at Dumraon and issues would be solved at earliest.</i>	
DMTCL	Motihari 400 kV	Not available since Sept 2019	PLCC link between Barh and Motihari is not healthy. In 7 <sup>th</sup> TeST Meeting, ERPC intimated that telemetry restoration of DMTCL is being taken up in OCC forum where they have shared their action plan for data restoration.	

**Members may note for compliance.**

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