



सत्यमेव जयते
भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

पूर्वी क्षेत्रीय विद्युत समिति

Eastern Regional Power Committee

14, गोल्फ क्लब रोड, टॉलीगंज, कोलकाता-700033

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सं/NO. ERPC/EE/OPERATION/2024/ 1125

दिनांक/DATE: 03.10.2024

सेवा में /To
संलग्न सूची के अनुसार /As per list enclosed.

विषय : 24.09.2024 (मंगलवार) को ईआरपीसी सचिवालय, कोलकाता में भौतिक रूप से आयोजित 219वीं OCC बैठक का कार्यवृत्त - संबंध में।

Sub: Minutes of 219th OCC Meeting held on 24.09.2024 (Tuesday) physically at ERPC Secretariat, Kolkata - reg.

महोदय/महोदया,
Sir(s)/Madam,


कृपया अपनी जानकारी और आवश्यक कार्रवाई के लिए 24.09.2024(मंगलवार) को ईआरपीसी सचिवालय, कोलकाता में 10:30 बजे भौतिक रूप से आयोजित 219वीं ओसीसी बैठक के संलग्न कार्यवृत्त देखें। यह ईआरपीसी वेबसाइट (www.erpcc.gov.in) पर भी उपलब्ध है।

Please find enclosed **Minutes of 219th OCC Meeting** held on 24th September 2024 (Tuesday) physically at ERPC Secretariat, Kolkata at 10:30 hrs for your kind information and necessary action. The same is also available at ERPC website (www.erpcc.gov.in).

टिप्पणियाँ, यदि कोई हों, कृपया यथाशीघ्र इस कार्यालय को अग्रेषित करें।
Observations, if any, may please be forwarded to this office at the earliest.

इसे सदस्य सचिव के अनुमोदन से जारी किया जाता है।
This issues with the approval of Member Secretary.

भवदीय /Yours faithfully,


03/10/2024

(S.Kejriwal)

SE(Operation)

एसई (ऑपरेशन)

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CC:

Chief Engineer, OPM, CEA	Chief Engineer, NPC, CEA	ASSISTANT SECRETARY,ERPC
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ERPC:: Kolkata

पतों की सूची:

1. मुख्य अभियंता (ट्रांस., ओ एंड एम), बीएसपीटीसीएल, पटना, (फैक्स नं. 0612- 2504557/2504937)।
2. मुख्य अभियंता (सिस्टम ऑपरेशन), बीएसपीटीसीएल, पटना, (फैक्स नं. 0612- 2504557/2504937)।
3. मुख्य अभियंता, ट्रांसमिशन (ओ एंड एम), जेयूएसएनएल, रांची (फैक्स नं.-0651- 2490486/2490863)।
4. मुख्य अभियंता, टीवीएनएल, डोरंडा, रांची - 834102 (फैक्स नंबर 06544-225414)
5. मुख्य लोड डिस्पैचर, एसएलडीसी, ओपीटीसीएल, भुवनेश्वर (फैक्स नंबर 0674-2748509)
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9. महाप्रबंधक, टीटीपीएस, तालचेर, (फैक्स नंबर 06760-243212)
10. एसआर. महाप्रबंधक (विद्युत), ओएचपीसी लिमिटेड, भुवनेश्वर, (फैक्स नंबर 0674-2542102)
11. मुख्य अभियंता, सीएलडी, डब्ल्यूबीएसईटीसीएल, हावड़ा, (फैक्स नंबर 033-26886232)।
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18. मुख्य अभियंता, एसएलडीसी, डीवीसी, हावड़ा (फैक्स नंबर 033-2688-5094)।
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20. कार्यकारी निदेशक, ईआरएलडीसी, पोसोको, कोलकाता, (फैक्स नंबर 033-2423-5809)
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22. महाप्रबंधक, खएसटीपीपी, एनटीपीसी, कहलगांव (फैक्स नंबर 06429-226082)
23. महाप्रबंधक, टीएसटीपीपी, एनटीपीसी, तालचेर, (फैक्स नंबर 06760-249053)
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25. महाप्रबंधक, पावरग्रिड, ईआर-I, पटना, (फैक्स नं.0612-2531192)
26. महाप्रबंधक (ओ एंड एम), पावरग्रिड, ओडिशा प्रोजेक्ट्स, साहिद नगर, भुवनेश्वर - 751 007
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सीसी:

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ईआरपीसी:: कोलकाता



**MINUTES
OF
219TH OCC MEETING**

Date: 24.09.2024

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

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EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 219TH OCC MEETING HELD ON 24.09.2024 (TUESDAY) AT 10:30 HRS

Member Secretary, ERPC chaired the 219th OCC meeting. On welcoming all the participants, he outlined the performance of ER grid during August-2024 and highlighted the following points:

- ❖ In **August -2024**, energy consumption of ER was **17966 MU** which is **2 %** more than August-2023.
- ❖ In **August-2024**, Peak demand met of ER was **28804 MW** which is **0.3%** more than **August-2023**.
- ❖ During **August-2024**, **75%** of time, the grid frequency was in IEGC Band (49.90Hz-50.05Hz).
- ❖ Thermal **PLF** of ER during **August-2024** was **72%**.
- ❖ Thermal generating units were lauded for maintaining PLF more than **90%**. Generating stations whose PLF was more than **90%** during **August-2024** are listed below:

Utility	Generating Stations	PLF %
WBPDC	Santaldih TPS	97
NTPC	Darlipali STPS	95

❖ **Coal stock position:**

➤ Coal stock position (As on 21.09.2024) is as follows:

SL.	Name of States/Power Stns.	% of Actual Stock vis-à-vis Normative Stock
1.	Jharkhand (TVNL)	79%
2.	Odisha/IBTPS	126%
3.	WBPDC	62%(Min.Santaldih TPS-43%, Max. Bandel TPS- 105 %)
4.	D.P.L. TPS	31%
5.	DVC	86%(Min.Raghunathpur TPP-41%, Max Durgapur steel tps- 119%)
6.	NTPC	86% (Min Barh STPS-60% & Max. Darlipalli STPS - 160%)

- ❖ He appreciated coal stock position of Gencos of ER considering the prevailing bad weather & persistent rainfall in the region.

❖ *He further highlighted the following:*

- *CERC DSM regulations have been implemented w.e.f 16.09.2024.*
- *Formal inauguration of CSIRT-POWER by Hon'ble Minister of Power (Govt of India) on 23.09.2024 with a vision of cybersafe power sector.*
- *Successful charging of 160 MVA ICT from spare pool at 220 kV Birpara (PG) S/S.*

❖ *ED ERLDC at the outset underscored the following:*

- *Increase in system demand in past few days.*
- *Around 40 GW of pan-India generation capacity under outage, of which 500 MW capacity is under outage in Eastern region. This is posing challenges in maintaining stable Load generation balance, especially in non-solar hours.*
- *The phenomenon of dip in frequency below IEGC band in non-solar hours is of serious concern.*
- *In such scenario, AGC mechanism in generators shall have to play pivotal role in ensuring grid stability. Thus, all generators were urged to participate in AGC and support grid in crisis.*

1. PART-A: CONFIRMATION OF MINUTES

1.1. Confirmation of Minutes of 218th OCC Meeting held on 23rd August 2024 physically at ERPC Secretariat, Kolkata

The minutes of 218th Operation Coordination Sub-Committee meeting held on 23.08.2024 was circulated vide letter dated 30.08.2024.

Members may confirm the minutes of 218th OCC meeting.

Deliberation in the meeting

- ◆ *In line with observations received from ERLDC, some alterations are hereby incorporated in the Minutes of 218th OCC Meeting as detailed hereunder:*

Item 2.3: Implementation of AGC in Intra-state generating units: ERLDC

“ERLDC mentioned that for connecting different vendor-specific AGCs implemented at the Plant with the centrally located AGC server & application placed at (SLDC or NLDC) there is no technical compatibility issue, as at NLDC AGC various different vendor-specific AGC plants are integrated without any problem.”

- ◆ *This modification shall form part and parcel of MOM of 218th OCC circulated vide letter dated 30.08.2024.*
- ◆ *Other members confirmed the minutes of 218th OCC meeting.*

2. PART-B: ITEMS FOR DISCUSSION

2.1 Feasibility of FGMO under new DSM Regulation: WBPDCCL

- The generating stations and units shall have electronically controlled governing systems or frequency controllers in accordance with the **CEA Technical Standards** for Connectivity and are mandated to provide PRAS and shall be **under Free Governor Mode of Operation** as per IEGC clause 30(10) (h). In this aspect, primary governor control action shall be fully available for deployment of +/- 5% of MCR within 45 second and to sustain for 5 minutes.
- Under this process, the station may experience a negative deviation in a block by way of under injection in a high frequency regime.
- But as per new CERC regulation followed by WBERC regulation regarding Deviation Settlement Mechanism and Related Matters – 2024, a penalty is imposed on Generating Station for under injection at higher frequency.
- Under such circumstances, we apprehend that the essence of FGMO is somehow compromised in the directives of new regulation.
- So OCC is appealed for further discussion in this matter

WBPDCCL may explain. Members may discuss.

Deliberation in the meeting

WBPDCCL submitted :

- As per extant CERC and WBERC regulations, in case of under-injection , the generators are now being penalized irrespective of the grid frequency and thus 85% of the reference rate(variable cost) is paid back to the ER pool.
- The same practice is followed even if the under-injection takes place in high frequency regime, i.e in providing support to the grid.This contradicts the basic purpose of FGMO operation based on Beta factor and entails significant financial losses to the generators.

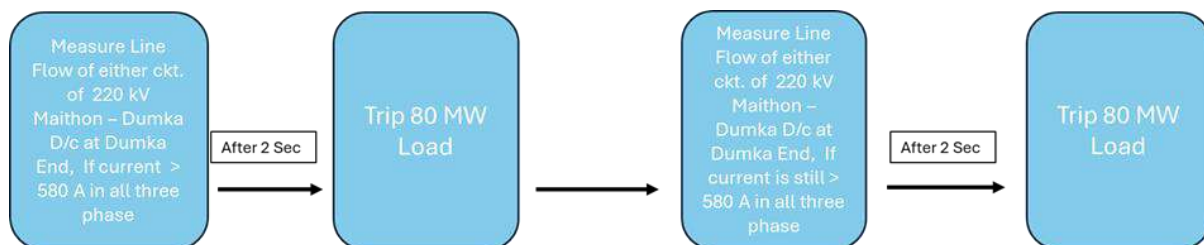
OCC observed that since WBPDCCL was already recovery ECR for scheduled power, there was no financial loss due to levy of DSM charges at 85% of RCR.

OCC Decision

- OCC suggested WBPDCCL to approach WBERC considering the fact that regulations pertaining to intra-state generators are framed by respective state regulatory commission.

2.2 SPS for 220 kV Maithon-Dumka D/C line: ERLDC

- Total line flow of 220 kV Maithon-Dumka D/c remains on the higher side and violates N-1 criteria for a considerable period. In June 2024, total load remained more than 240 MW for around 87% of the time.
- To prevent cascaded tripping in case of N-1 contingency of either circuit, a SPS scheme for 220 kV Maithon-Dumka D/c was deliberated in **137th PCC** meeting held on 30.07.2024. Accordingly, SPS scheme was finalized as below and **PCC advised JUSNL to share details of feeder identified for providing load relief of 160MW.**



* 580 Amp for 210 MW at 0.95 Power Factor

JUSNL has intimated following load relief in two stages:

Stage 1: Tripping of 132 kV Dumka (Madanpur)-Pakur D/c (Load relief of 100 MW)

Stage 2: Tripping of 220 kV Dumka (Madanpur)-Godda D/c (Load relief of 40 MW)

JUSNL has suggested load relief of 140 MW only in place of 160 MW citing radial network configuration. Communication received from JUSNL is attached as **Annexure B.2.2**

In 138th PCC meeting held on 28.08.2024, JUSNL had also sought technical assistance from Powergrid ER-1 in implementing this SPS scheme.

ERLDC may explain. JUSNL and Powergrid ER-I may update. Members may discuss.

Deliberation in the meeting

- ❖ *ERLDC proposed for tripping of 140 MW of radial load and it was informed that same has been agreed by JUSNL in 138th PCC.*
- ❖ *For implementation of this proposal, an SPS has been proposed as per following logic:*
 - *In case of 210 MW loading (sustained for 2 seconds) in either of the circuits of 220 kV Maithon-Dumka D/C, 100 MW radial load of Pakur will be initially tripped.*
 - *If still the loading persists at 210 MW in either circuits for next 2 seconds, 40 MW load of Godda shall be tripped.*
- ❖ *JUSNL gave consent to this proposal and requested for support from Powergrid ER-I .*

OCC Decision

- *OCC opined that while designing and implementing the SPS logic, tripping of essential/critical loads should be avoided.*
- *OCC advised JUSNL to expedite implementation of the proposed SPS within a week in coordination with Powergrid ER-I. Powergrid ER-I agreed to provide necessary technical assistance to JUSNL in this regard.*
- *JUSNL was also directed to expedite the LILO of 220 kV Dumka-Govindpur D/C line at 400/220 kV Dhanbad S/S and provide regular status update on the operational readiness of the LILO of 220 kV Dumka-Govindpur line at Dhanbad.*

2.3 SPS for synchronization of 2nd 350 MW Unit at IBEUL: ERLDC

- Synchronization of 350 MW U#2 of IBEUL was discussed in CEA meeting held on 26.07.2024 and subsequently, connectivity was granted by CTU on 20.08.2024 with the existing network of Unit#1. As per discussion in the CEA meeting, SPS at OPGC needs to be implemented to facilitate first-time synchronization of 350 MW U#2 at IBEUL.
- Relevant excerpt from the meeting is as below:
“SPS to be implemented with the logic that Main CBs of IBEUL and Jharsuguda circuits at OPGC end to be opened whenever loading on OPGC-Lapanga 400 kV D/c line reaches to 850 MW per circuit. Tie CB of IBEUL and Jharsuguda circuits at OPGC end shall remain closed so as to form IBEUL – Jharsuguda 400 kV 2nd line.”
- IBEUL may co-ordinate with SLDC Odisha and OPGC. SLDC Odisha and OPGC may facilitate.

ERLDC may explain. IBEUL.SLDC Odisha and OPGC may update. Members may discuss.

Deliberation in the meeting

IBEUL updated that synchronization of Unit#2 is planned in the first week of October 2024.

Further the following SPS logic has been finalized in CEA meeting dated 26.07.2024:

“To open the main circuit breakers of IBEUL and Jharsuguda circuits at the OPGC end whenever the loading on the 400 kV OPGC-Lapanga D/C line exceeds 850 MW per circuit. Tie CB of IBEUL and Jharsuguda circuits at OPGC end shall remain closed so as to form IBEUL – Jharsuguda 400 kV 2nd line.”

OCC Decision

- *OCC opined that SPS logic as finalized in CEA meeting held on 26.07.2024 should be implemented to facilitate synchronization of 2nd unit of IBEUL.*
- *OCC advised that the SPS at OPGC end should be implemented at the earliest. OPGC and SLDC Odisha should extend necessary technical and administrative assistance to IBEUL in implementation of the SPS.*

2.4 Bus split operationalization of Kahalgaon: ERLDC

- *Bus splitting was proposed at 400kV Kahalgaon switchyard as per CEA recommendation in the standing committee on Power System held on 20.09.2010 to reduce its fault level for safe and reliable operation of the GRID.*
- *The scheme was approved in the 24th ERPC meeting on 27.04.2013.*
- *NTPC was requested to carry out bus splitting scheme vide ERPC letter dtd. 24.07.2014.*
- *Although the bus splitting scheme was implemented in 400kV Switchyard in Feb 2019. However, It has not been operationalized yet due to the non-availability of 400/132kV ICT in Bus sections 3&4 for feeding auxiliary consumption of stg 2 units of KHSTPP.*
- *As intimated by NTPC, the PO for the purchase of ICT's was placed on M/s EMCO which went bankrupt causing delay in purchase. Later the contract was awarded to M/s BHEL in March 2019. The ICTs are now supplied at Kahalgaon and ICT-3 pedestal support work is in progress as per the latest intimation from NTPC, Kahalgaon.*
- *Bus splitting at NTPC Kahalgaon is of utmost importance considering increased fault level due to the commissioning of several generating units in this vicinity. Further, as a part of standby ISTS connectivity to Godda Thermal Power project of M/s Adani Power (Jharkhand) Ltd. (APJL) with Indian grid, a proposal for interim connectivity of said plant is under discussion through LILO of 400kV Kahalgaon A – Maithon B, which can be facilitated only after operationalization of Kahalgaon bus splitting.*

NTPC may update. Members may discuss.

Deliberation in the meeting

NTPC submitted :

- *The ICT-3 supplied by M/S BHEL is ready for commissioning at 400 kV Kahalgaon switchyard.*
- *This delay is mainly attributed to the delay in laying of 21 km of control cables by M/S GE.*

OCC Decision

- OCC stressed the importance of bus splitting to mitigate the rising fault level due to the commissioning of new units. Additionally, operationalization of the scheme is critical for standby ISTS connectivity to the Godda Thermal Power Project.
- OCC directed NTPC to expedite the pending activities for putting the approved bus splitting scheme in service at 400 kV Kahalgaon , in coordination with the concerned vendors /OEM.
- OCC opined to carry out a joint site visit at NTPC Kahalgaon comprising members from ERPC,ERLDC and NTPC to ascertain the delay in making the bus splitting scheme operational at NTPC Kahalgaon.

2.5 New trip settings in view of increase in line length of Dikchu Teesta Rangpo line.: Dikchu HEP

- After the flooding of the Dikchu HE Plant in Oct 2023, the plant was under restoration and is presently undergoing re-commissioning activities targeting end of Sep 2024 for the commissioning of first unit. The transmission system of Dikchu plant is through a single line LILO arrangement of the Teesta- Rangpoo D/c 400 kV lines. As the Teesta -3 HE plant is under shut down and is not likely to be re-commissioned in near future, the Transmission lines of Teesta 3 plant i.e. Teesta 3 -Rangpo & Teesta 3- Dikchu 400 KV lines , have been interconnected near Teesta 3 Pothead yard, by - passing the GIS .Hence Dikchu- Teesta-3 line (15 kms) shall be effectively extended directly to Rangpoo, (Dikchu-Teesta3-Rangpoo) and the total length of the line shall be around 71 Kms. In view of this, the distance relay settings at Dikchu end needs to be changed.
- Therefore it is requested to give consent for altering the protection settings of Distance protection relays of Dikchu- Teesta 3- Rangpo line (71 Km), installed at dikchu end. Once Teesta 3 Plant is operational, the settings shall be changed back.
- The other line from Dikchu to Rangpoo (32 km) shall not require any change in trip settings.
- Following are also proposed
- The details of the relays installed are given below:

Distance Protection of Dikchu Teesta 3 line	Relay 1	Relay 2
Relay	Alstom P444	ABB REL670
PTR	400kV/110V	400kV/110V
CTR	3000/1A	3000/1A
Line Length presently considered	15.10 KM	
Line Impedance presently considered	3.825 Ohm	
Line Angle	86.6 Degree	

- The existing settings attached for this line. New protection settings shall be submitted to you for review and approval.
- Test certificate for Distance and BusBar protection attached at **Annex B.2.5**

Dikchu HEP may explain. Members may discuss.

Deliberation in the meeting

Dikchu HEP submitted :

Consent for altering the settings Distance protection relays of Dikchu- Teesta 3- Rangpo line (71 Km), installed at dikchu end is required as an interim measure. Once Teesta 3 Plant is operational, the settings shall be reverted to its original form.

OCC Decision

- OCC approved the interim network configuration as proposed by Dikchu HEP.
- OCC recommended for study and validation of the proposed changes in protection settings (**Annex B.2.5**).
- OCC also referred the issue to PCC for deliberation.

2.6 Consideration of Outage taken for the purpose of Insulator cleaning of various Transmission Lines as deemed available: POWERGRID ER-I

- Tripping and insulator de-capping of various Transmission Lines has been observed during winter season in foggy weather condition and resulted in reduced reliability of system.
- The major cause of tripping analyzed as insulator flashover due to pollution deposition. To avoid similar events in the upcoming winter season, vulnerable areas have been identified, where the insulators are getting polluted due to either bird beats, brick kiln, stone quarry, Road construction or industrial area (List enclosed as **Anx-B.2.6**). The insulator under these areas needs to be cleaned as a precautionary measure prior to upcoming foggy weather condition.
- The insulator cleaning activity was also taken up last year (Oct to Dec'23) and same has resulted in improved performance and less tripping of transmission line during foggy weather condition as shown in below table (details attached as **Anx-B.2.6**):

Winter Period'2022	No. of Tripping/AR	Winter Period'2023	No. of Tripping/AR	% Reduction
Dec to Feb	34	Dec to Feb	9	73.50 %

- These trippings / de-capping are occurring due to pollutions and dense fog which is beyond the control of POWERGRID.
- For preventing the unwanted tripping due to pollution, we have planned for cleaning of the insulators of affected locations of Transmission lines as mentioned in **Anx-B.2.6** during **October to December'2024**.
- As these outages are being proposed for preventing from tripping of the Transmission line due to pollution which is beyond the control of POWERGRID and to improve the system reliability during foggy weather condition, the outage may be considered under **force majeure** condition for calculation of **availability**.

OCC is requested to consider the proposal for approval.

POWERGRID ER-I may explain. Members may discuss.

Deliberation in the meeting

- The agenda was dropped.

2.7 Formulation of comprehensive guidelines for the usage and sharing of optical fibres of OPGW for power system applications: ERPC

- ❖ A Committee has been constituted under the chairmanship of Member (Power System), CEA tasked with formulating comprehensive guidelines for the usage and sharing of optical fibres (OPGW) for power system applications.

Composition:

1. Member (Power System) (Chair) ,CEA
2. Chief Engineer(PCD), CEA
3. Chief Engineer, NPC
4. Chief EngineerET & I,CEA
5. Member Secretary, RPCs
6. Executive Director, CTU
7. Executive Director, Grid India
8. Executive Director, Powergrid
9. Representative of Electric Transmission Association - 2 TSPs ETA
10. Representative (at the level of Chief Engineer or equivalent)
11. Eastern Region states : WBSETCL, OPTCL

Scope:

- Sharing of OPGW laid under ULDC scheme on the ISTS lines.
- Sharing of OPGW laid under ULDC scheme on the Intra-State lines.
- Sharing of OPGW laid by STUs on the intra State lines.
- Sharing of OPGW laid by CTU/Powergrid on the Intra State lines.
- Sharing of OPGW on the ISTS lines laid by TSPs under TBCB and RTM projects.
- Investigate the integration of Fiber Optic Terminal Equipment (FOTE) for differential protection in accordance with the C37.94 protocol and bring out recommendations.
- Define the uniform mechanism of routing of OPGW fibers in case of LILO taken up on any transmission line.
- Recommend the scenarios/limit of OPGW fibers beyond which it can be utilized for other commercial purposes

The first meeting of the Committee to formulate comprehensive guidelines for the usage and sharing of optical fibers of OPGW for power system applications was held on 09.08.2024.

Salient decisions in the meeting in are highlighted as follows:

❖ Need of Guidelines, Allocation Requirements and Sharing Scenarios

- All the members to submit in written the current practice being followed vis-a-vis their view on the following:

a) Number of fibers to be reserved for power system applications, clearly stating number of fiber cores required for speech, data communication and for catering to teleprotection application including the spare fibers to be kept in case of any damage; future reconfiguration or sharing of OPGW infrastructure among ISTS and STU as required.

While stating the current practice and requirements, members to specify the current OPGW network configuration (whether Multiplex Section Protection (MSP) or Sub-Network Connection Protection (SNCP) protocol is being used)

b) Number of OPGW fiber core to be planned while planning the new transmission scheme or carrying out existing communication infrastructure upgradation.

c) Principle of sharing of fiber cores of OPGW among Powergrid (owner of ULDC fibers), STU's and ISTS licensees (Powergrid as well as other TSPs).

➤ CTU , Powergrid and GridIndia to submit their inputs in respect of need of utilization of underground fiber optic cable (UGFO) of DISCOMs for grid operation purposes. A separate meeting to be convened with the DISCOMs to deliberate upon principle of sharing of underground fiber optic cable (UGFO) laid by DISCOMs. CTU, Powergrid and GRID INDIA to mobilise their resources to compile the cases requiring the DISCOM's cooperation and coordinate with DISCOMs for the above meeting.

❖ **Integration of Fiber Optic Terminal Equipment (FOTE) for differential protection in accordance with the C37.94 protocol**

Powergrid to submit a report based on use case of LILO of Pugalur (HVDC) – Pugalur (HVAC) line of Powergrid at Kallam PS pertaining to operational nuances and efficiency of carrying out Fiber Optic Terminal Equipment (FOTE) based differential protection in accordance with C37.94 protocol.

(2) The Committee while finalizing the number of fibers to be reserved for power system applications will take into account the length of the line and the feedback from the operational experience of the above used case.

❖ **Uniform mechanism of routing of OPGW fibers in case of LILO/reconfiguration of the transmission line.**

All the members to submit their views regarding the mechanism of routing of OPGW fibers in case of LILO/rerouting is taken up on any existing transmission line. The suggestion needs to be made in light of the fact that routing philosophy will also impact the number of fibers to be kept reserved for future LILOs.

Detailed MOM attached at **Annex B.2.7**

Members may discuss.

Deliberation in the meeting

❖ *All constituents were apprised that a committee chaired by Member (Power System), CEA has been constituted to develop guidelines on the usage and sharing of Optical Ground Wire (OPGW) for power system applications. In this regard, valuable inputs have been sought from all concerned stakeholders.*

❖ *Inputs received from ER constituents on OPGW fibre sharing summarized below:*

- *WBSETCL informed:*

Approximately 50% fibres used for own purpose.

- *DVC informed:*

Around one-third of the total fibres used for own purpose.

- *Jharkhand submitted :*

Only two pairs of fibres are used for communication purpose.

- *Bihar intimated that major portion of the fibres is leased out for commercial use.*

- *OPTCL apprised:*

Four fibres used for own purpose, 4 fibres are kept reserved while rest are having commercial utilization.

Powergrid ER-II informed:

Three pairs of fibres are for own use while rest 9 pairs are in commercial use.

OCC Decision

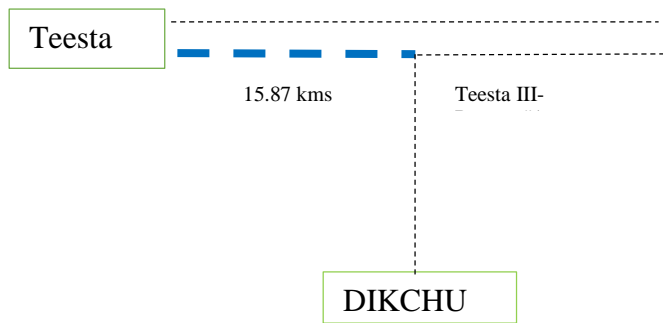
- *OCC observed that OPGW has been laid under various schemes like ULDC and various mode by STUs and Central Sector transmission licensees. To accommodate new generation capacity and to cater to increasing power demand there is frequent change in network configuration like LILO of existing transmission lines or addition of new lines. This has necessitated the sharing of existing fibres among different utilities for establishing reliable communication.*
- *OCC acknowledged the necessity of optimal utilization of existing OPGW fibres amongst power sector utilities.*
- *OCC opined that in view of implementation of line differential protection in short lines and emerging technologies like MPLS, etc, maximum portion of the OPGW fibres (including spare fibres) should be kept for power sector applications.*
- *OCC further opined that usually 24 fibre OPGW is used while 48 fibre OPGW deployed in LILO portions of the transmission line. This existing practice may be kept unchanged.*
- *Any other relevant inputs from ER constituents in this regard may be shared with CEA (PCD division) with copy to ERPC to aid in formulating the guidelines on usage and sharing of optical fibres.*

2.8 Revised connectivity for redundant path of Teesta-III- CTU

S. No.	Items	Details
1.	Scope of the scheme	Laying of OPGW with required terminal equipments from Teesta III to LILO point(15.87km) to establish 400kV Teesta

		III-Rangpo#1link.Presently Teesta III-Rangpo#1line is LILLOed at Dikchu HEP.
2.	Objective / Justification	In the 51st ERPC meeting held on 12.01.2024, ERPC gave the decision as follows: i. The scheme for the revised connectivity of the redundant path of Teesta-III is accorded for in principle approval. ii. CTU was directed to provide a cost estimate for the revised scheme in the next CCM Meeting of ERPC. Accordingly, cost estimate is proposed in ERPC CCM meeting.
3.	Estimated Cost	Rs. 1,12,36,000/- (approx.) (One crore Twelve Lakhs Thirty-Six Thousand only)
4.	Implementation time frame	18 months from date of allocation.
5.	Implementation mode and agency	Line Ownership of the proposed section for OPGW laying in the instant scheme is with TPTL. To be implemented by POWERGRID in RTM mode.
6.	Deliberations	The scheme was revised and OPGW laying is proposed on Teesta III to LILLO point for Dikchu HEP (15.87 km) on Teesta III-Rangpo ckt 1. The revised scheme was deliberated in 51st ERPC meeting held on 12.01.2024. In the 51st ERPC meeting held on 12.01.2024, ERPC gave the decision as follows: i. The scheme for the revised connectivity of the redundant path of Teesta-III is accorded for in principle approval. ii. CTU was directed to provide a cost estimate for the revised scheme in the next CCM Meeting of ERPC. As directed in 51st ERPC meeting, the revised scheme with cost estimate is being put up for CCM committee of ERPC for review. This scheme after CCM committee review shall be put up to NCT for approval.

Schematic diagram of FO connectivity of Teesta III



Legends:

— — — — — : under this proposed scheme

-----: OPGW proposed under different scheme

L: LILO point

In the 51st CCM:

- ◆ Representative of CTU submitted that in-principle approval for the scheme has already been accorded in the 51st ERPC meeting. The cost estimate of Rs. 1,12,36,000/- (approx.) (One crore Twelve Lakhs Thirty-Six Thousand only) submitted by Powergrid is also in order.

The 51st Commercial Committee agreed with the proposed cost estimate and referred for concurrence of 52nd TCC & ERPC.

TCC may concur.

Deliberation in 52nd TCC meeting

- TCC agreed in-principally on the proposed scheme of OPGW connectivity of Teesta-III with cost estimate of Rs. 1,12,36,000/- (One crore Twelve Lakhs Thirty-Six Thousand only).
- However, CTU was advised to explore possibility of implementing the redundant communication link by utilizing the existing fiber optics.
- TCC referred it to ERPC for discussion and approval.

Deliberation in 52nd ERPC meeting

❖ **ERPC decision**

- ERPC opined that in view of ROW issues and bleak chance of revival of Teesta-III HEP in near future, Powergrid may explore use of spare fibres of existing OPGW for connectivity of Dikchu(LILOed portion) to Teesta-III .
- Powergrid agreed to the suggestion of ERPC.
- The feasibility of the same needs to be updated by Powergrid in TeST forum of ERPC.

CTU/Powergrid may update. Members may discuss.

Deliberation in the meeting

OCC Decision

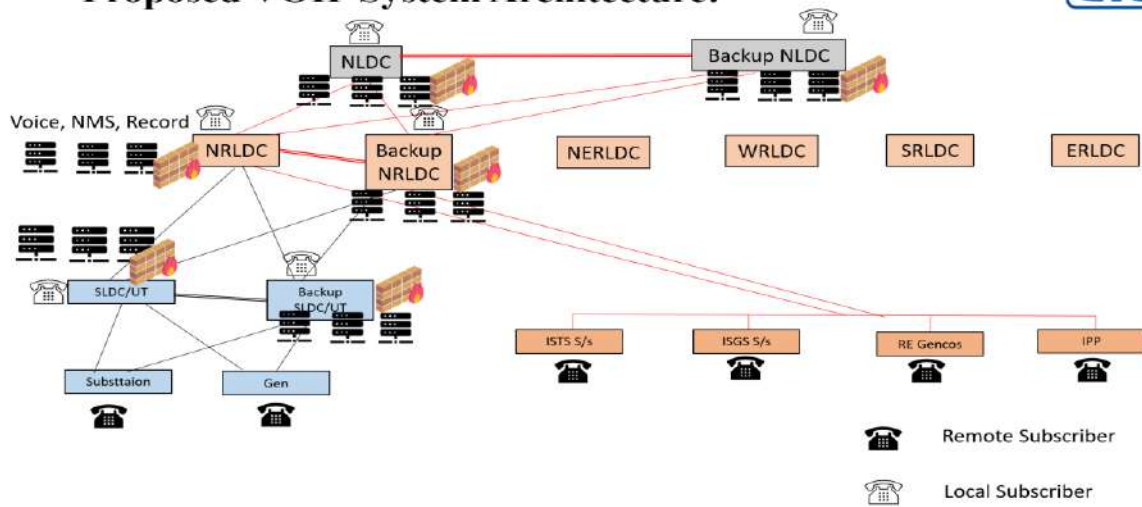
After detailed deliberation, OCC observed that such redundancy has not been ensured in all transmission lines and hence suggested utilization of existing OPGW fibres for this purpose. It was also discussed that Dikchu HEP shall be granted connectivity to Sikkim intra-state network in near future.

Hence ,OCC suggested to keep this proposal in abeyance.

2.9 VOIP Communication system for Grid-Operation of all Five Regions: NR, NER, SR, WR, ER on PAN India basis –CTU

- Hot Line Speech Communication System (VOIP based PABX system) was implemented in 2016 by POWERGRID in all five regions after grid disturbance in 2012 where grid operators faced problem of fast communication due to unavailability of dedicated speech communication PAN India between NLDC, RLDCs, SLDCs, important state and ISTS substations and generators. The said PABX was implemented by M/s Orange through Alcatel Lucent as OEM. The lead region for the existing VoIP system is Northern Region of POWERGRID. After execution of the project cost of the same booked under regional communication schemes. As per CERC tariff regulations useful life of system is 15 years.
- In the 67th NRPC meeting dtd. 30.06.2023, POWERGRID representative stated that the scheme executed by M/s ORANGE was with a provision of AMC of 7 years as part of the contract and the same is expiring in July' 2023 for most of the sites.
- AMC of the same was extended and approved in the 67th NRPC for further 2 years upto July'25 with financial implication and shall be booked under ULDC O&M charges as per the CERC norms. After July'25 there is no support shall be extended by Alcatel (OEM). POWERGRID stated they are not able to maintain the system beyond that AMC expiration. MS-NRPC advised CTU to plan upgradation/ new system in view of expiration of AMC in July'25.
- In this regard CTU discussed the requirements with utilities & various VOIP system suppliers/OEMs and acquired inputs from the utilities in the various meetings of CPM, COM/ TeST/SCADA of all five regions (reference are given in the scheme). For the utilities those have provided inputs we have considered the same in the cost estimate purpose. Further a combined CPM (Communication planning meeting) of all five region was also held on 12.06.2024 to obtain uniformity of features and functions of the VoIP system among all regions. After incorporating the comments of all utilities MoM is issued same is attached at Annexure-2.14.1.
- It is proposed that being a Nationwide PAN India project, the total cost of five regions including NLDC and international Exchange (Cross border links) VoIP system shall be put up in all five regions for RPC/s review followed by NCT approval as single Scheme and package PAN India Basis for seamless integration.

Proposed VOIP System Architecture:



S. No	Present VOIP Exchange	Proposed VOIP system
1	Exchange based system	Server based system
2	Star based architecture and no redundancy between exchanges (SLDC/RLDC/NLDC)	<p>Multiple level of Redundancy kept.</p> <p>At phone level two channels are proposed for main and backup exchanges of SLDCs and RLDCs.</p> <p>For State sector four level Hardware redundancy has been considered as e.g. Main SLDC/ Back Up SLDC/ Main RLDC/ Backup RLDC</p> <p>For Central sector four level Hardware redundancy has been considered as e.g. Main RLDC/ Back Up RLDC/ Main NLDC/ Backup NLDC</p>
3	Proprietary License based system	SIP based open source licenses
4	The IP Phones connected at NLDC, RLDC and SLDC are proprietary IP Phones of Alcatel	IP Phones shall not be proprietary in nature.

5	No PoE Switches	POE switch with dual redundancy considered
6	NA	Firewall are considered for cyber security
7	NA	Cyber Security Audit is considered
8	NA	Provision of video phones at Control Centre for higher officials
9	NA	Sufficient numbers of licenses considered to cater future RE/ ISTS/ ISGS/ IPP and STU substations locations.
10	Recording done at one location	Recording at each Control Centre shall be done locally and later at regular intervals transferred to a backup server for storage and archival

Estimated Cost implication towards Eastern Region is around **Rs 19.76 Cr. excluding GST/taxes.**

Particulars	Cost(Cr.)
Cost(Central Sector)	12.32
State sector Total cost	7.44
ER Region Total (CS+State sector)cost(approx)	19.76

Tentative Region-wise cost breakup of the scheme is given below:

Cost Breakup Between Regions and Central Sector and State Sector

Region	Central Sector (ISTS) (in Crs.)	State Sector (in Crs.)	Total (in Crs.)
NR	₹18.54	₹15.92	₹ 34.46
SR	₹15.3	₹ 12.68	₹ 27.98
WR	₹14.61	₹ 11.74	₹ 26.35

ER	₹12.32	₹ 7.44	₹ 19.76
NER	₹16.91	₹5.45	₹ 22.36
National Portion (NLDC Ex, International exchange and Cyber audit)	₹ 6.55	₹ 0	₹ 6.55

Grand Total: ₹ 137.46 Cr. (excluding GST/TAXES)

Central Sector Cost Breakup

Equipment	Number	Cost (Cr.)
Servers *	2+12*	6.10
NGFW*	2+12*	1.66
Number of VOIP phone Local/Remote including POE switch ,cat-6 cable & Remote phone installation	350	1.28
Analog Phones with Gateway	100	0.08
AMC CS (1+6) years		3.2
Total Cost(Central Sector)		12.32

National Component of VOIP System

Utility	Servers		Phones			POE Switch (with dual DC) (No.)	Cat 6 cable (100m set)incl. installation (No.)	NGFW (No.)	Total Cost with AMC (6 Yr after 1 Yr. warranty (in Crs.)	Central Sector (CS)/State Sector (SS)
	Main (No.)	Backup (No.)	VOIP (Local) (No.)	VOIP (Remote) (No.)	Analog Phone (including gateway) (No.)					
NLDC	1	1	42	0	400	0	0	2	2.60	CS
International Exchange	1	1	30	0	0	0	0	2	1.19	
Cyber Audit Cost									2.76	
Grand Total = ₹6.55 (including AMC) (excluding GST/TAXES)										

Cost breakup of Eastern Region

Eastern Region Utility	Servers		Phones			POE Switch (with dual DC) (No.)	Cat 6 cable (100m set)incl. installation (No.)	NGFW* (No.)	Total Cost with AMC (6 Yr after 1 Yr. warranty (in Crs.)	Total cost (in Crs.)	Central Sector (CS)/State Sector (SS)
	Main (No.)	Backup (No.)	VOIP (Local) (No.)	VOIP (Remote) (No.)	Analog Phone (including gateway) (No.)						
ERLDC	1	1	150	200	100	200	200	2	12.32	12.32	CS*
SLDC, Ranchi	1*	1*	10	50	100	60	60	2*	0.58	7.44	SS
OPTCL	1*	1*	16	92	85	92	92	2*	0.84		
SLDC Bihar Patna	1*	1*	30	152	212	152	152	2*	1.59		
SLDC WB Howrah	1*	1*	30	152	212	152	152	2*	1.59		
SLDC DVC backup Maithan	0	1*	17	70	150	70	70	1*	0.70		
SLDC DVC Kolkata	1*	0	27	54	150	54	54	1*	0.60		
SLDC Sikkim	1*	1*	30	152	84	152	152	2*	1.54		

State	Number of VOIP phone Local/Remote including POEswitch ,cat-6 cable & Remotephone installation	Cost (Cr.)	Analog Phone with gateway	Cost (Cr.)	AMC SS (1+6) years Cost(Cr.)	Approx. State Total(Cr.)
SLDC, Ranchi	60	0.36	10 0	0.08	0.16	0.58
OPTCL ,Bhubne shwar	108	0.56	85	0.07	0.22	0.84
SLDC Bihar Patna	182	1.05	21 2	0.11	0.43	1.59
SLDC WB Howrah	182	1.05	21 2	0.11	0.43	1.59
SLDC DVC backup Maithan	87	0.44	15 0	0.09	0.19	0.70
SLDC DVC Kolkata	81	0.36	15 0	0.09	0.16	0.60
SLDC Sikkim	182	1.05	84	0.07	0.41	1.54

*Servers and NGFW shall be physically placed at SLDCs but their cost has been included in Central Sector Portion

Grand Total = ₹19.76 Crs. (including AMC) (excluding GST/TAXES)

➤ **Modalities of Cost sharing:**

❖ There are three types of cost involved, Regional Central Sector, National Central Sector, State Sector. The sharing of cost shall be done as per following mechanism between constituents:

(i) **Regional Central Sector Cost** to be shared by respective region DICs as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 under Regional Component.

(ii) **National Central Sector Cost** to be shared by all regional DICs as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020 under National Component.

(iii) **State Sector Cost** shall be shared by respective state/s for their portion as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020.

(iv) **AMC for State Sector** shall be shared by respective states for their portion as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020.

❖ **52nd ERPC decision:**

- Taking into account the necessity of VOIP communication for real time grid operation, ERPC in-principle consented to the proposed scheme.
- CTU was advised to furnish details regarding cost of each components in proposed architecture. In this regard, a special meeting shall be convened to re-examine the BOQ of the scheme and requirements submitted by ERLDC/SLDCs.
- In case the timely implementation of proposed VOIP doesn't materialize, Powergrid was advised on exploring alternate interim arrangement or further extension of existing vendor to sustain seamless VOIP communication, essential for grid operation.

As per deliberation in **special meeting** dated **19.09.2024**:

- ERLDC to submit revised requirement
- SLDC Bihar was advised to furnish final requirement in next OCC.
- Requirement of Sikkim SLDC to be reviewed.
- CTU to submit revised estimate incorporating all the modified/additional requirements so that the quantity may be freezed in consensus of all stakeholders in OCC.

CTU may further explain. Members may discuss.

Deliberation in the meeting

- ❖ *CTU briefed on the scope, purpose and cost implications of Pan-India VOIP connectivity scheme.*
- ❖ *The detailed BOQ of the scheme as submitted by CTU was discussed and analyzed with ERLDC and all constituent members.*

- ❖ ERLDC revised its requirement of local VOIP from 150 to 20 and accordingly furnished the detailed breakup of both local and remote requirements. For NLDC, requirement of analog phones was revised from 400 to 250.
- ❖ West Bengal SLDC revised its present requirement to 15 local VOIP phones each for main and backup SLDC and nil for future purpose.
- ❖ Members queried about the item-wise cost breakup in the BOQ.

OCC Decision

- OCC directed state SLDCs to re-examine the BOQ and share their inputs for VOIP system with CTU within a week.
- OCC advised CTU to prepare revised BOQ considering the revised requirement of all states and reassess the memory backup capacity.
- CTU was advised to submit the revised cost estimate with item-wise breakup.
- The matter to be discussed after receipt of revised proposal from CTU.

2.10 Establishment of State-of-the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the Regional UNMS- for ISTS Communication System - CTU

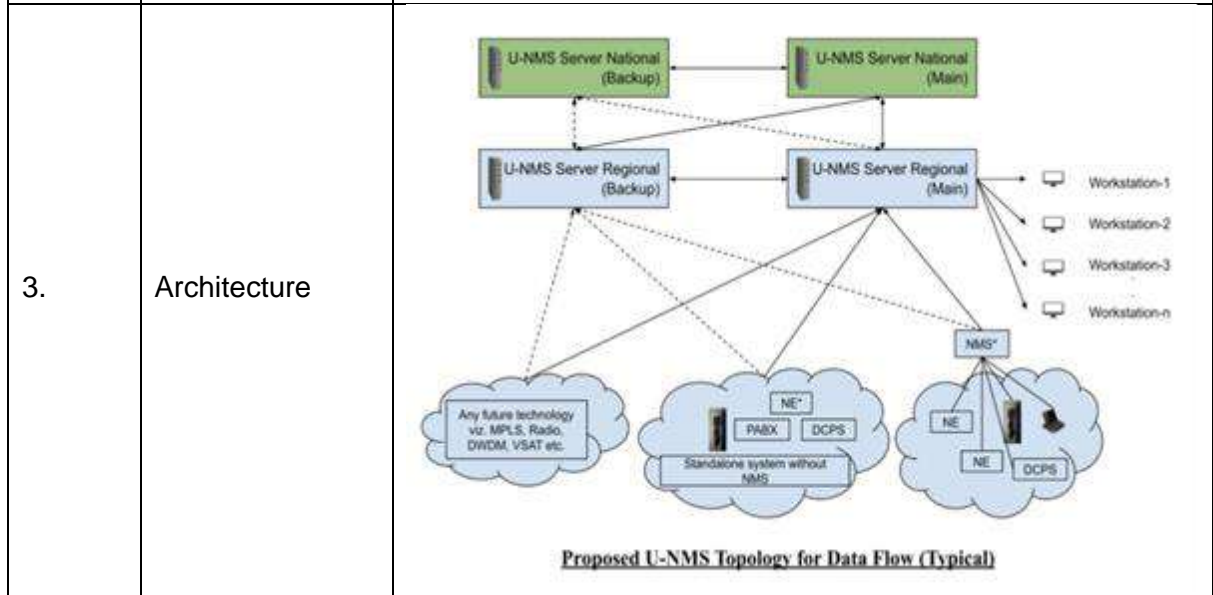
Background:

- In line with CERC, CEA Regulations and RPC approvals, the Regional UNMS scheme integrating ISTS communication system along with State sector network, is being deployed in each region.
- Now, all five (5) Regional UNMS servers shall be integrated in the next layer to the National UNMS server integrating all the regional ones; in main & backup configuration.
- This will facilitate centralized reporting/collection of PAN India communication Network of ISTS as well as State level system including cross border links at National Level. The scope & technical aspect of the National UNMS scheme shall be broadly in line with Technical Specification of Regional UNMS while including features for National aspects, as per the deliberations held in all RPC/NCT forums.
- Summary of relevant approvals in various forums:
- The scheme for National UNMS was deliberated in all RPC forums earlier during deliberation of respective Regional UNMS projects.
- Further, the National UNMS scheme was also deliberated in the 14th NPC meeting held on 03.02.2024 in Bangalore.
- It is to be noted that the agenda of N-UNMS has already been approved in NRPC, WRPC and SRPC.

Sl. No.	Items	Details
1.	Name of Scheme	Establishment of State-of- the-Art National Unified Network Management System (N-UNMS) in main & backup configuration integrating all the regional UNMSs.
2.	Scope of the scheme	<ul style="list-style-type: none"> • Supply and Installation of Main & Backup National-UNMS system hardware and software along with associated items at respective UNMS Centres. The new

		<p>system shall be deployed in such a way that the operation of the existing systems should not be disturbed.</p> <ul style="list-style-type: none"> ● Supply and Installation of hardware & software for workstation, network switches, firewall & IDPS, Printer, Furniture etc. ● Integration of existing Regional UNMS (In Main & Backup config) with Main and Back up N-UNMS System. One channel of each Regional UNMS to Main and Back up UNMS centre shall be used for redundancy of respective UNMS Centres. ● Development of complete Database, displays and reports either from scratch or by extracting existing database, displays and reports, also for creating integrated national communication system overview and inter regional system details for the modules. ● Supply of all FCAPS features with advance planning tool. ● Import and Adaption of database & displays made for Regional UNMS system including import of historical data stored in existing servers for integration in new system also for creating national dashboard and inter regional system dashboards for the required system details. ● Auxiliary Power Supply System Comprising of UPS with Battery set along with all necessary distribution board. ● Integration & Testing with any new UNMS coming up during implementation and AMC period of this Project. ● Supply of Spares identified under AMC along with main items to meet the contingency during installation period and during AMC period. ● All cabling, wiring, and interconnections to the items being supplied and to be integrated including power supply. ● The project scope shall include customization of its database, such as configuration of database, scan period and all other database parameters required to integrate existing system successfully.
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		<ul style="list-style-type: none"> • Additional Hardware, software and services necessary to ensure compatibility with existing equipment. • Auditing of Cyber Security implementation by CERT-In listed Auditors during AMC & ensuring its compliance. • Training of personnel and Users of the System. • Comprehensive Maintenance of the supplied system for seven (7) years including one (1) year defect liability period as per specification, including integration with future UNMS (if any), Database configurations, Maintaining Spare inventory etc. • Integration with third party Applications: The N-UNMS Systems being supplied shall have provision to exchange data with the existing and or to be purchased third party applications of in standard formats like ODBC, OPC & XML etc. • GI/Aluminium cable trays/trace ways with covers shall be supplied in the project for laying cables so that cable can be protected from rodents. These cable trays/trace ways shall be screwed/ fixed on the floor. • The system shall have remote console along with connectivity and shall be under AMC for; CEA- PCD & NPC Division, NLDC- Grid India, CTUIL, GA&C- POWERGRID. Additionally, UNMS control room in CTUIL shall be equipped with a 85 Inch TV/Monitor.
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4.	Objective/ Justification	<input type="checkbox"/> In line with CERC, CEA Regulations and RPC approvals, the Regional UNMS scheme integrating ISTS communication system along with State sector
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		<p>network, is being deployed in each region. Now, all five (5) Regional UNMS servers shall be integrated in the next layer to the National UNMS server integrating all the regional ones; in main & backup configuration. This will facilitate centralized reporting/collection of PAN India communication Network of ISTS as well as Intra State level system including cross border links at National Level. The scope & technical aspect of the National UNMS scheme shall be broadly in line with Technical Specification of Regional UNMS while including features for National aspects, as per the deliberations held in all RPC/NCT forums.</p> <ul style="list-style-type: none"> □ The proposed National UNMS (N-UNMS) System shall provide the multi-tiered solution for Network Management System Functions with modules such as Network Resource/Discovery/Inventory, configuration management, Planning, Fault/Alarm Management, Performance Management, Trouble Ticket with application security, reporting, simulation, Artificial Intelligence & Analytics etc. and common dashboards also for integrated national network and for inter-regional systems including cross border. □ The N-UNMS shall also provide a Pan India visualization of power system communication network. This shall facilitate Centralized Supervision and Quick Fault detection and restoration for ISTS Communications systems for National, Inter-Regional and Cross-Border communication system and the network. The N-UNMS shall additionally have advanced planning tool having features for Long, Medium & Short-Term Planning for preparing planning projections for ISTS Communication System (for National/ Regional/ State) for 2 years, 5 years and 10 years. □ The proposal of N-UNMS was deliberated in all the RPCs during approval of respective Regional UNMS scheme and the in-principle technical approval has been given by the forum. The relevant extract of 15th NCT meeting is also attached as Annexure-2.16.
5.	Estimated Cost	<p>Rs. 101* Crores. (approx.) and 19.07 Crores. AMC charges for 7 years. The cost of national UNMS shall be recovered on POC basis.</p> <p>*Cost has been derived from awarded package of regional UNMS Scheme</p>

6.	Implementation timeframe	24 Months from date of project allocation based on NCT approval.
7.	Implementation Mode	Through RTM to POWERGRID
8.	Location of National UNMS	Main UNMS at NLDC , Katwaria Sarai, and Backup UNMS at ERLDC , Kolkata

Cost Breakup:

POWERGRID CORPORATION OF INDIA LTD. ABSTRACT COST ESTIMATE FOR N-UNMS		
(Rs. in Crore)		
Sl. No.	Description	Amount
	Equipment Cost	
A	Supply	67.67
B	Services/Installation incl training, testing and commissioning	1.91
C	Inland Freight and Insurance (@ 4%)	2.71
	Subtotal (A to C)	72.29
D	Taxes and Duties	
i	GST on Supply	12.18
ii	GST on Service / Installation incl. Training	0.34
	Subtotal (D)	12.52
	Subtotal (A to D)	84.81
E	Incidental Expenditure during Construction (@ 10.75%)	9.12
F	Contingency (@ 3%)	2.54
	Total (A to F)	96.47
G	Interest During Construction (IDC)	4.59
	Grand Total	101.06

H	Annual maintenance charges for 1 year during warranty period and 6 years after warranty period incl. GST*	19.07
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After detailed deliberations,

- ❖ TCC in principle agreed to the need of National UNMS project.
- ❖ TCC advised CTU to furnish the cost breakup of the National NMS project having detailed scope along with cost allocation for Eastern region.
- ❖ The matter was referred to ERPC for further deliberation.
- ❖ **ERPC decision:**
 - ERPC opined to convene a special meeting in presence of CTU and all ER states to finalize the modalities of cost sharing among ER constituents.
 - ERPC accorded in-principle approval to the National UNMS project.
 - CTU was advised to share detailed cost breakup i.r.o proposed N-UNMS project (as per the scope) along with share of Eastern region in the same.
 - CTU was also advised to share the implementation plan of N-UNMS with all RPCs once it gets approved in NCT forum.

Detailed BOQ attached at **Annex B.2.10**

CTU may explain. Members may note.

Deliberation in the meeting

- ❖ *WBSETCL and DVC raised concern on the utility and cost-benefit analysis of the existing regional UNMS already operational in eastern region.*
- ❖ *WBSETCL submitted:*
The utility of the existing regional UNMS in catering their operational needs to be validated prior to proceeding with the proposal of N-UNMS project.
- ❖ *CTU explained the utility of the proposed N-UNMS project i.r.o availability computation and holistic visibility of data communication over inter-regional as well as trans-national links. This shall aid in seamless power exchange by individual states.*
- ❖ *CTU also intimated that regional UNMS projects are under progress in both WR and SR, which is expected to be completed in next one year.*
- ❖ *DVC submitted:*
 - *As per CERC Tariff regulation 2024-29 the useful life of FOTE equipment is 7 years. Part of the DVC's FOTE equipment (SDH based Wideband Network) has fulfilled its useful life of 7 years on December, 2023 and rest of SDH equipment will complete its useful life of 7 years on March, 2025. In view of this and also considering the congestion in the available Bandwidth of SDH based Wideband equipment, DVC has planned for replacement of its entire SDH equipment by the MPLS-TP equipment.*

- The new NMS of MPLS-TP network should have to be integrated with the existing U-NMS and also with the future N-NMS. Technical feasibility should be there in both the existing U-NMS and N-NMS to integrate any NMS of Communication Network.

OCC Decision

- OCC consented to the technical requirement of National UNMS project.
- In view of lack of consensus amongst ER states on utility as well as cost sharing of the proposed N-UNMS project, OCC opined that once the regional UNMS project gets successfully implemented in WR and SR, the proposal shall be re-examined in ERPC forum.

2.11 Supply & Installation of AMR Compatible ISTS Interface Energy Meters along with AMR (Automatic Meter Reading) System under the scheme “5 min Interface Energy Meter along with AMR system”-For all five regions as PAN India level: CTU

S. No.	Items	Details
1.	Name of Scheme	Supply and installation of AMR compatible 5 min Interface Energy Meter along with AMR Systems- For all five regions NER, ER, NR, WR & SR.as PAN India.
2.	Scope of the scheme	<ul style="list-style-type: none"> <input type="checkbox"/> Supply of AMR compatible 5 min Interface Energy Meters for all ISTS metering points of All five regions, <input type="checkbox"/> Installation of new AMR compatible IEMs by replacing existing meters in case of existing points and for newly added metering points. (Replacement work & New Installation work) <input type="checkbox"/> Supply and installation of AMR systems in dual LAN configuration at central location along with DCU, Ethernet Switch and other accessories at substation end and AMR software along with servers, consoles, historian software, database, printer, firewall, furniture, etc. at RLDC end to receive 5 min load profile data in auto mode. <input type="checkbox"/> Provision of streaming online instantaneous MW data at a user configurable rate (minimum 1 min) via AMR system for viewing purpose. <input type="checkbox"/> AMC includes Operations & Maintenance work (including data processing & report generation from AMR) for complete AMR system for 7 years. <input type="checkbox"/> Online Data storage of Raw Data & processed data for three years. <input type="checkbox"/> The complete scope of IEM & AMR scheme shall be broadly in line with the Technical Specification (Section 1 & 2 of Part 1) circulated by NPC Division, CEA vide letter dtd. 6th July 2022. <input type="checkbox"/> Note: MDP system which is also part of the above TS mentioned shall be implemented by

		<i>respective RLDC and would match the timeline schedule with IEM & AMR project.</i>
3.	Conceptual Architecture of AMR connectivity of ISTS Meters	Appendix-I
4.	Objective/ Justification	<ul style="list-style-type: none"> • For Indian Power system, commercial settlements of energy generation and consumption are being computed through Availability Based Tariff (ABT) and Deviation Settlement Mechanism (DSM) which are in vogue for energy accounting. Availability Based Tariff was implemented in India in 2002/2003 considering the settlement period as 15-min. • Government of India (Gol) has set a Renewable Energy (RE) target of 500 GW by 2030. In the last few years approximately since a decade, the need for implementing 5-minute meters along with AMR system for regional energy accounting and settlement at the Inter State level has been discussed and deliberated in various apex level forums & Committees. • A PAN India pilot project on 5-minute metering was implemented as per the directive from Hon'ble CERC in 2018. A report on the pilot project covering implementation aspects, challenges and suggested way forward has been submitted by POSOCO for perusal of the Hon'ble Commission • This issue was discussed in OCC/TCC/RPC meetings at regional level and it was discussed to replace the existing SEMs (15-min Block) with AMR compatible Interface Energy Meters (5-min Block) and implementation of Automated Meter Reading (AMR) and Meter Data Processing (MDP) system for efficient and faster accounting. Moreover, there is a need expressed by States to get streaming online instantaneous MW data at a user configurable rate (minimum 1 min) at SLDCs via AMR system for viewing purpose to manage their drawl. • A Joint Committee (JC) comprising the members from each RPC, CEA, CTU/PGCIL & POSOCO has been prepared Technical Specifications (TS) of the "5/15 Minute Interface Energy Meters (IEMs) with Automatic Meter Reading (AMR) and Meter Data Processing (MDP)" for interstate transmission system at PAN India basis. NPC Division, CEA vide

		<p>letter dated 6th July 2022 had circulated the final copy of the TS.</p> <ul style="list-style-type: none"> • This Technical specification includes: • All the procured IEMs shall be configured as 5 min time block. These meters shall record and send 5 min block data to regional AMR system for necessary computation to convert 5 min Time Block data to 15 min Time block data (in line with regulations). • Provision of 1 min instantaneous MW power flow data from IEMs to SLDC, for viewing purpose only. • CTUIL sent a letter dtd. 27.06.2023 to CERC stating that nodal agency for AMR system implementation may be identified. CTUIL also informed NPC division, CEA vide letter dtd. 24.07. that JC TS calls for 5 min Time block recording by ISTS IEMs whereas as per CEA metering regulation it is 15 min time block. • In this regard, Grid-India NLDC specified to NPC, CEA that 5-minute time block could be considered for procurement of new ISTS IEM, AMR & MDP. Subsequently NPC CEA, coordinated a joint meeting amongst the stakeholders comprising of CERC, Grid India (NLDC, RLDCs) & CTUIL, chaired by CEA Regulatory division dated 18th August'23 to check the feasibility for amendment of the CEA metering regulation in line with the ongoing developments and requirements of 5 min time block recording in IEMs. • In view of the above-mentioned system requirement of 5 min Time Block, while also complying the present regulations for 15 min time block for Scheduling, Accounting, Metering & Settlement; JC TS is being adopted for the above-mentioned project proposal.
5.	Deliberations in RPCs	<p>The PAN India scheme was discussed in all the RPCs and the status is as below:</p> <p>50th SRPC: In-principle approval accorded.</p> <p>49th WRPC: In-principle approval accorded with a request to CTU to seek PSDF funding which may be available in the next financial year.</p> <p>74th NRPC: Approval accorded.</p>

		26th NERPC: In-principal approval accorded with a request to CTU to seek PSDF funding for the same for NER as special case.
6.	Estimated DPR Cost	Rs. 444.87 Cr. excluding AMC & Rs 152.62 Cr. for 7 yr AMC *Costing to be updated considering latest no. of meters and locations at the time of tendering.
7.	Implementation timeframe	Approx. 24 months from gazette Notification.
8.	Implementation Mode	To be deliberated

Earlier 90% of the project cost was allocated for PSDF grant. But grant for the FY 24-25 is not available as per MoP order. **Accordingly, the modality of funding is also to be deliberated.**

52nd TCC Decision:

- TCC in principally consented to the requirement of 5 min IEMs with AMR, however the exact requirement of meters needs to be worked out on consultation at ER OCC meeting.
- TCC opined:
 - ❖ CTU needs to re-examine the requirement of meters in Eastern region in view of compliance of the existing meters with 5 min data recording to latest technical specifications and also furnish the cost breakup of each metering point along with AMR.
 - ❖ Since AMR is already operational in ER, final cost may be arrived at by considering only those locations where AMR is yet to be implemented.
- TCC referred to ERPC for further deliberation.
- ❖ **52nd ERPC decision:**
 - CTU was advised to review the quantity of meters proposed for installation and thereby submit revised BOQ particularly for Eastern region with appropriate cost justification. The detailed cost breakup should be furnished factoring in the existence of AMR compatible IEMs in major portion of Eastern region.
 - ERPC opined that existing AMR integrated meters in ER possessing capability of energy recording at 5 min interval shall not be replaced in implementation phase.
 - CTU was also advised to explore minimization of estimated capital cost prior to placing for NCT approval.
 - ERPC also opined to convene a special meeting.

As per deliberation in **special meeting** dated **19.09.2024:**

- ER states to confirm the requirement of 1 min instantaneous MW data.
- Powergrid to present upgradation necessary in present AMR network to conform to latest pan-India Technical specifications.

CTU may explain. Powergrid and states may share views. Members may discuss.

Deliberation in the meeting

- ❖ *NTPC and WBPDCCL submitted that managing the deviation in injection of generated power with 1 minute instantaneous MW data is not practically feasible as response time of boiler, turbine and other mechanical equipment is much higher. This may in turn amount to higher magnitude of deviation.*
- ❖ *West Bengal SLDC stated that managing deviations w.r.t drawl may not be feasible with 1 min instantaneous MW data.*
- ❖ *SLDC Odisha submitted that real time telemetry of actual MW data at 1 min interval will be helpful in managing their deviation.*
- ❖ *Powergrid ER-II delivered concise presentation(Annex B.2.11) showcasing comparative analysis of the features in existing AMR vis-à-vis the newly proposed features as envisaged in the proposed pan-India AMR project in line with new technical specifications drafted by Joint Committee.*
- ❖ *Powergrid ER-II also highlighted various challenges in sharing of real time MW data:*
 - *Available RS-485 port with daisy chain mechanism used for retrieving data from SEM to AMR.*
 - *In ER, the current AMR network is completely on Layer-2 with no logical segregation and same subnet of IP. This is under upgradation to Layer3/Layer4 with logical isolation and different subnet of IP (Recently approved in 52nd ERPC). Otherwise, when all Meters will send data in every one minute, along with 15 Min scheduler, there may be data broadcast issue resulting in choking of the entire network and hence loss of data.*
 - *Getting 01 min instant data from a single Meter/few Meters may be feasible, but proper system design and other fail-safe mechanism must be in place before even testing of same feature.*
 - *For implementing this 01 min instantaneous MW data collection, TCP/ IP based meters will be mandatory for data collection that shall pose significant escalation in cost implications for ER constituents.*

OCC Decision

- *OCC consented to implementation of 5 min data recording in existing AMR of eastern region in a phased manner. In this regard successful POC for 5 min Load survey data has already been conducted by Powergrid.*
- *OCC opined that existing AMR integrated meters in ER possessing capability of energy recording at 5 min interval shall not be replaced in implementation phase of the pan-India project.*
- *OCC observed divergence in views on requirement of instantaneous MW data reporting to SLDCs. Since significant cost implications have been involved in the existing AMR project, OCC opined to ascertain the the feasibility of instantaneous MW data reporting at 1 min interval in existing AMR system from TCP/IP meters. Powergrid was advised to share report on pilot study of the same in next OCC.*
- *OCC advised Powergrid to conduct a one day worksop on meter data reporting from SEMs, SEM and AMR architecture inviting all stakeholders.*

2.12 URTDSM (Unified Real Time Dynamic State Measurement) Phase-II Proposal for Implementation through RTM route :_POWERGRID

- ◆ POWERGRID has been entrusted to prepare the DPR for URTDSM Phase-II project in the **13th NPC** meeting held on **05.07.2023**. The DPR is to be made on basis of '**Report of the Sub-Committee on PMU Placement and Analytics under URTDSM Phase II**' constituted by National Power Committee.
- ◆ Presently **1400PMUs** and **32 Control centres** have been established under URTDSM Phase-I project. This project was implemented with **70% of the project cost as PSDF grant** and **30% was through POWERGRID Equity (RTM for 30% portion and no tariff for 70% grant portion)**.
- ◆ Similarly, DPR for URTDSM Phase-II Project, which included **4000PMUs(new) and 34 control centres** was prepared with funding pattern of **70% PSDF grant and 30% POWERGRID equity in line with Phase-I**. The DPR with an estimate of Rs.3922 Crores, was submitted to NPC/CEA on 11.03.2024. The scope included replacement of 32 control centres, addition of 2 control centres and supply of 4000 new PMUs including integration of 1400 existing PMUs.
- ◆ In 14th NPC meeting held in Bengaluru on 03.02.2024, DPR status was updated to members. It was suggested to optimise the cost. Various options for optimisation were discussed with GRID-INDIA. The same is enclosed at **Annexure-B.2.12** These Options were presented to NPC on 30.05.2024 for further deliberations.
- ◆ **NPC vide email dated 18.04.2024 has informed that PSDF funding shall not be available for the project and alternate sources of funding shall be explored by POWERGRID. Hence, POWERGRID is approaching all the Constituents in the RPCs for concurrence for execution of the URTDSM Phase-II Project on RTM basis.**
- ❖ **Justification for Phase-II project:**
 - ◆ The WAMS system installed under Phase-I project proved its significance and usefulness to the Grid Operators for wide area monitoring of the Grid and Event Analysis. Further, the expanding Indian Power Grid with increased penetration of renewable energy sources and Govt of India's plan to achieve 500GW RE power by 2030, needs Smart Grid tools to proactively monitor, manage, and operate the Grid.
 - ◆ URTDSM Phase-II project also envisages advanced WAMS analytics for Oscillation monitoring, Disturbance analysis, inertia monitoring, measurement of RE generator(inverter) response, which shall enhance the Grid observability for efficient and safe operation of the Grid.
- ❖ **POWERGRID Viewpoint G Proposal:**
 - ◆ The URTDSM phase-1 Control centres are nearing their Operational life and will become technically obsolete. Hence to keep the WAMS URTDSM Control centres functional, the
 - ◆ URTDSM phase 2 project which includes upgrade of existing control centres, is to be implemented on priority.
 - ◆ Increased penetration of Renewable energy has required increase in more monitoring of the regional grids which requires more deployment of PMUs. The URTDSM phase 2 includes installation of PMUs as per Sub-committee report.
 - ◆ Keeping in view of the above factors, POWERGRID proposes to take up URTDSM Phase-II Project on pan India basis (upgradation of all Control Centres, new control centres and installation of new PMUs), on cost sharing mechanism (100% RTM route with 70:30 Debt equity ratio) with the approval of all RPCs and Regulatory Authority.

❖ **Status of approval in RPCs:**

- ◆ DPR for URTDSM Phase-II reviewed by NPC, advised to look for alternate funding sources for the project as PSDF funding is not available.
- ◆ Accordingly, POWERGRID took up the proposal for implementation of URTDSM Phase-II project under 100% RTM route in following RPCs/OCCs:
 - ❑ 73rd NRPC held on 21.05.2024 – URTDSM Phase-II proposal was technically agreed, but NRPC concurrence for method of implementation (100% RTM route) to be obtained.
 - ❑ 52nd SRPC held during 2-3Aug 2024 – It was suggested to optimise the cost
 - ❑ To be deliberated in WRPC, ERPC, and NERPC.

Powergrid may explain. Members may discuss.

Deliberation in the meeting

- ❖ Powergrid delivered a presentation(**Annex-B.2.12**) highlighting key aspects of the proposed URTDSM phase-II project as follows:
 - ❑ Summary of funding and scope of the existing URTDSM project(Phase-I).
 - ❑ Justification and scope of the project amid increased RE penetration and growing need of smart grid tools for efficient grid operation.
 - ❑ DPR Cost Estimate of Rs. 3205 Cr for all SLDCs pan-India out of which Rs. 536 Cr for ER SLDCs. Cost for the portion of RLDC and NLDC is excluded from the estimate.
 - ❑ PMU placement philosophy in the proposed project.
 - ❑ Cost optimization options explored i.r.o the upcoming project.
- ❖ Powergrid request for approval of control centre upgradation and proposed that placement of PMU in new locations may be deferred

OCC Decision

- OCC technically agreed to the proposal of URTDSM Phase-II implementation. However members expressed reservation on project execution in RTM mode.
- OCC opined that URTDSM phase-II being a project of national importance, all cost optimization options should be re-examined and possibility of funding from PSDF should be explored.

2.13 Shutdown proposal of generating units for the month of October'2024-ERPC

Maintenance Schedule of Thermal Generating Units of ER during 2024-25 in the month of October'2024							
System	Station	Unit No.	Capacity (MW)	Period (as per LGBR 2024-25)		No. of Days	Reason
				From	To		
DVC	DSTPS	1	500	15-10-2024	18-11-2024	35	COH-Boiler RLA, turbogen., De-Nox &FGD

IPP	MPL	2	525	01-10-2024	14-11-2024	45	COH
	Adhunik TPS	1	270	15-10-2024	13-11-2024	30	Annual Maintenance
CESC	Southern TPS	2	67.5	13-10-2024	27-10-2024	15	PG Test/ Boiler License Renewal
TATA POWER	Jojobera TPS	2	120	15-10-2024	19-11-2024	36	Annual Maintenance

- GMR Unit#3 (350 MW) shutdown was originally approved from **16.09.2024** to **10.10.2024** for 25 days.
- But GMR has later intimated change in shutdown plan due to mobilization constraints of the concerned OEM.
- Thus it is proposed by GMR to postpone the approved shutdown for Annual overhauling from **05.10.2024** for **25 days** i.e upto **30.10.2024**.
- Letter from GMR at **Annex B.2.13**

Members may discuss.

Deliberation in the meeting

- DVC informed of availing shutdown of Mejia TPS unit#3 from 20.10.2024 for 45 days for generator replacement and ESP upgradation works.
- MPL representative requested for shutdown of Unit#2 from 12.11.2024 to 27.12.2024 for capital overhauling.
- CESC affirmed of availing shutdown of Southern TPS Unit#2 as per approved schedule of LGBR 2024-25.
- In view of non –availability of necessary spares from OEM on time and turbine bearing temperature crossing threshold limits, GMR requested postponement of the approved shutdown of Unit#3 from 05.10.2024 for annual overhauling. The unit shall be out of service for 25 days i.e upto 30.10.2024.
- DVC and NTPC endorsed the concern of GMR and stated that continued operation with turbine bearing temperature beyond threshold limit is detrimental to health of the unit.
- GRIDCO raised concern on non-availability of GMR Unit#3 during festive season and submitted that GMR has to fulfil its supply obligation during the proposed outage duration.

OCC Decision

- Considering the fact that persistent operation of the unit with high turbine bearing temperature may result in forced outage and subsequent loss to the beneficiaries in long term, OCC approved the shutdown of GMR Unit#3 from 05.10.2024 for 25 days.
- OCC advised GMR and GRIDCO to settle all PPA related issues mutually.
- OCC granted consent to all other above requested shutdown proposals. The detailed shutdown schedule as approved by OCC forum is provided at **Annexure B.2.13**.

2.14 Time extension of Planned Unit Outages:: ERLDC

- As per the prevailing practice of ER, monthly shutdowns of Generating Units are discussed and approved in OCC meeting of ERPC vis-à-vis approved LGBR.
- **It is observed that certain units are extending the planned outage duration without any prior approval/information.** Details of such unit outage for the period from July'24 to Aug'24 are as below:

Unit	S/D period approved in OCC	Actual Outage Date	Revival date	Reason	Remarks
Mejia U#2 (210MW)	01/08/24 to 28/08/24	28-07-2024	10-09-2024	AOH/BOH	Extension approval not taken
FARAKKA U#5 (500MW)	01/07/24 to 30/07/24	01-07-2024	20-08-2024	Boiler + LPT +Generator	Extension approval not taken

- **For proper load-generation balance and ensuring resource adequacy, prior approval/information for availing/extending Planned outage of units needs to be taken.**

ERLDC may explain. Concerned GENCOs may update. Members may discuss.

Deliberation in the meeting

OCC Decision

- *OCC advised all generating utilities to adhere to the approved shutdown schedule to the best possible extent.*
- *In case of inadvertent extension of shutdown duration due to contingency, the same may be intimated beforehand to ERPC/ERLDC. This shall aid in maintaining load generation balance in real time with adequate resource availability.*

2.15 Submission of Daily Generation details on NPP Portal : ERPC

- Under the relevant provision of The **Electricity Act, 2003, Central Electricity Authority** is entrusted with the responsibility to collect and record the data concerning the generation of power and publish various reports like Daily Generation Report, Monthly Generation Report, Thermal Performance Review etc. All these reports are prepared based on the information furnished by various generating stations/ utilities on a daily, monthly, and yearly basis in a time bound manner.
- In this connection, your attention is invited to Section 74 of The Electricity Act 2003 and CEA (Furnishing of Statistics, Returns, and Information) Regulations, 2007, which stipulate that it shall be the duty of every licensee, generating company or person generating electricity for its or his own use; to furnish to Authority such statistics, returns or other information relating to the generation, transmission, distribution, trading, and use of electricity as it may require and at such times and in such form and manner as may be specified by the Authority.

- Daily Generation data is required to be submitted online over the National Power Portal, which is not initiated by your organisation as per our records. It is, therefore, requested to submit the Daily Generation Data online over the NPP portal regularly on daily basis.
- (Note: User ID & passwords for National Power portal has already been issued to all users. In case details are not available or any other issue regarding NPP, a request for the same with the Name of Nodal officer, email id and mobile no. may be sent to NIC on email id: npp.support@gov.in with information to OPM Division on email id: grceaopm@gmail.com)

Members may note.

Deliberation in the meeting

OCC Decision

OCC advised all SLDCs and generating utilities to furnish daily generation details on National Power Portal in compliance to Electricity Act 2003 (section 74) and CEA(Furnishing of Statistics, Returns, and Information) Regulations, 2007.

*Communication from CEA in this regard to DVC and SLDC West Bengal attached at **Annex-B.2.15**.*

DVC and West Bengal SLDC affirmed the regular submission of generation details on NPP portal.

2.16 Intra-state transmission system requirement of ER states by 2032: ERPC

- A Plan/Report for transmission system requirement of ER states by 2031-32, is to be prepared by CEA in consultation with States of Eastern Region.
- In this regard following information/data of ER states is required:
 1. New proposals of the State regarding intra-state transmission system requirement by 2031-32, including New substation with its associates transmission line(s), evacuation system of new generations stations, Augmentation of existing substation, New transmission lines and Reconductoring of existing line etc.
 2. Justification of each proposal.
 3. Estimated cost of each proposal
 4. Present and proposed conductor details, in case of reconductoring proposals (i.e. Ampacity details, year of commissioning of existing line etc.)
 5. Node wise generation/demand data by 2031-32,
 6. Latest PSS/E load flow files incorporating updated proposals with .idv files,
 7. SLD of the existing and proposed intra-state transmission system,
 8. Plotting of existing as well as planned intra-state transmission system on PM Gatishakti National Master Plan portal.
 9. Latest Schedule of Rates (SoR).

All states are requested to provide requisite details. Members may discuss.

Deliberation in the meeting

OCC Decision

OCC advised all STUs/Transcos of Eastern region states to furnish the relevant details (as mentioned above) pertaining to the upcoming transmission projects(new lines, new substations, reconductoring of existing lines,etc) with CEA (Power System Planning and appraisal division PSPA-II) at the earliest. This shall aid in delineating a comprehensive plan on transmission system requirement of ER states by 2031-32.

2.17 Review of AUFLS in Eastern region: ERPC

- ◆ A Task Force was constituted by NPC vide letter dated 25.08.2023 on Implementation of AUFLS and df/dt scheme under the chairmanship of Member Secretary, SRPC and comprising members from NPC, RPCs and Grid-India.
- ◆ The Task force after convening meeting on 11.09.2023 submitted its report to NPC in 14th NPC meeting on 05.02.2024, wherein certain recommendations were made.
- ◆ Accordingly, as per decision of 214th OCC meeting, a special meeting was convened on **10.07.2024** to deliberate on successful implementation of Automatic Under Frequency Load Shedding (AUFLS) in Eastern region wherein following course of action was delineated to all constituent ER states.
- ◆ **Action points:**
 - All SLDCs were instructed to shift the load quantum from Stages –III & IV to stage-I & II respectively as an interim measure till new feeders for additional load relief gets identified by individual state DISCOMs.
This must be implemented at the earliest with necessary changes in frequency settings of the existing UFRs and the same shall be reviewed in upcoming OCC meeting.
 - All SLDCs were advised to share the identified feeders list for revised load relief quantum within a month. The status shall be reviewed in monthly OCC meetings.
 - Curtailment of critical loads should be avoided. However , in stage-III and stage-IV, as it operates only in severe threat to grid stability, industrial loads may also be considered. Accordingly DVC and IPCL (having dominant industrial consumers) were urged to identify industrial feeders for load relief in stage-III and stage-IV.
 - All SLDCs were urged to expedite and ensure SCADA visibility of existing as well as newly identified feeders under AUFLS for effective supervision of load relief quantum.
- ◆ Based on submission by DVC, revised load relief quantum as follows:

(Figs in MW)

Constituent	Stage-1	Stage-2	Stage-3	Stage-4	Total
Bihar	315	379	442	442	1577
Jharkhand	87	105	122	122	437
DVC	172	207	241	241	861
Odisha	306	367	428	428	1530
West Bengal	497	597	696	696	2486
Sikkim	5	6	7	7	25
Total	1383	1660	1937	1937	6916

Constituent wise	Annual Consumption	Consumption factor	Demand met	Peak demand factor	Demand contribution
Bihar	40952	0.220	7578	0.236	0.228
Jharkhand	12391	0.067	1923	0.060	0.063
DVC	26214	0.141	3476	0.108	0.125
Odisha	41142	0.221	7104	0.221	0.221
West Bengal	65009	0.349	11868	0.370	0.359
Sikkim	526	0.003	137	0.004	0.004
Total Consumption	186234	1.000	32086	1.000	1.000

52nd TCC Decision:

- ❖ SLDC, Odisha was directed to take up the matter with DISCOM to identify the feeder list and shifting of load at the earliest to implement AUFLS.
- ❖ Director, SLDC Odisha agreed to coordinate with concerned DISCOM and **update in next OCC.**

TCC advised all SLDCs :

- ❖ To expedite the process of implementation of AUFLS in stage I & II by shifting load quantum from stage III & IV at the earliest time possible.
- ❖ Explore the identification of new feeders to incorporate AUFLS in stage III & IV who have successfully implemented AUFLS in stage I & II by shifting load quantum from stage III & IV.
- ❖ to share the list of newly identified feeders with ERPC Secretariat within One Month for information.
- ❖ to ensure SCADA data mapping from newly identified UFR feeders at ERLDC level & In case of non-availability of SCADA data, anticipated timelines for making availability of SCADA data must be communicated for all applicable UFR feeders.

All SLDCs/STUs and individual state DISCOMs may update action taken/future plan w.r.t AUFLS. Members may discuss.

Deliberation in the meeting

OCC Decision

OCC advised all SLDCs:

- *To explore the identification of new feeders to incorporate AUFLS in stage III & IV who have successfully implemented AUFLS in stage I & II by shifting load quantum from stage III & IV.*
- *To ensure SCADA data mapping from newly identified UFR feeders at ERLDC level & In case of non-availability of SCADA data, anticipated timelines for making availability of SCADA data must be communicated for all applicable UFR feeders.*
- *To ensure periodic testing of UFR to ascertain their healthiness and submit report to ERPC/ERLDC.*

- SLDC Odisha was instructed to expedite finalization of feeder list and shifting of load to stage –I & II of AUFLS in coordination with concerned DISCOM.

2.18 Ensuring Accurate Data and Telemetry from 132 kV and Above Substations in the Eastern Region for the Effective Operation of Envisaged Tools under the New SCADA/EMS System: ERLDC

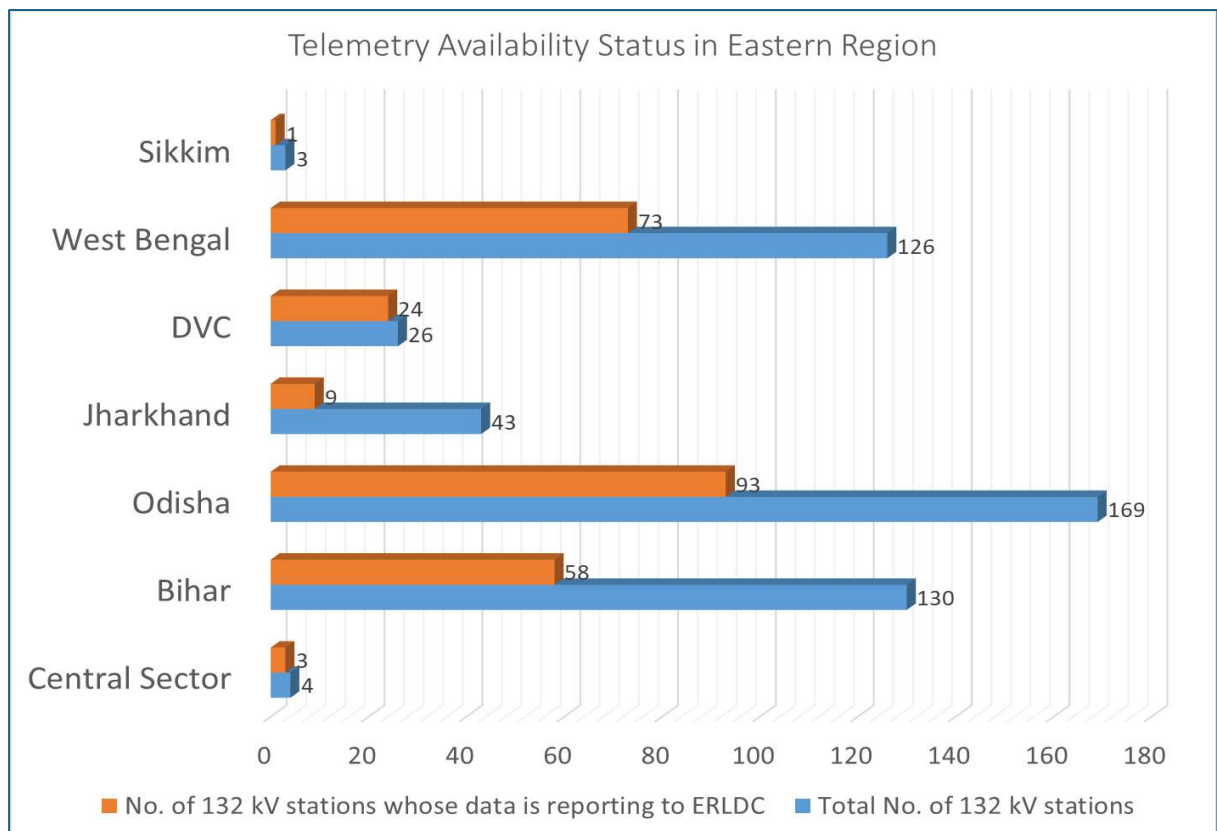
- New SCADA/EMS system implementation under ULDC Phase III to commence soon, per POWERGRID's letter dated 2nd August 2024. System includes decision-support tools for real-time operations:

- State Estimator (SE)
- Real-Time Contingency Analysis (RTCA)
- Dynamic Security Assessment (DSA)

Success of these tools' hinges on accurate data and telemetry from 132 kV and above substations in the Eastern region. Existing SCADA/EMS system tools (SE, RTCA) face functionality issues due to missing real-time telemetry, particularly:

- Non-reliable data from substation at 132/220 kV levels
- Circuit breaker and Isolator status (132 kV and above substations)

❖ Telemetry Availability Status in Eastern Region is shown below:



- At present, the State Estimator and Real-Time Contingency Analysis tools are fully functional only at ERLDC, albeit with ongoing challenges related to the accuracy of analog and digital data. These tools are essential for real-time operators, aiding in decision-making for planned and forced outages, and ensuring network security. Globally, most ISO/TSOs rely on state estimator values for real-time operations.
- **Regulatory Requirements:** Under the new IEGC 2023, Clause 33.1 mandates real-time and intraday operational planning using SE/RTCA for both RLDC and SLDC. Clause 33.2 further mandates the provision of reliable and accurate real-time data to ensure the successful operation of SE and RTCA tools through the SCADA/EMS system at RLDC and SLDC levels. Additionally, the operational performance of these tools and issues related to data and telemetry are to be discussed in OCC meetings on a monthly basis.
- **Current Actions and Ongoing Issues:** Several actions have been undertaken in the Eastern region to ensure accurate data and telemetry, including SAS/STU upgrades and redundancy in telemetry paths. However, there remain significant gaps, particularly with 220 kV substations where real-time data is not consistently available. Additionally, the accuracy of digital status signals, which are critical for the functioning of these tools, remains a concern. ERLDC has also received requests to charge new or modified elements without the required data telemetry, often supported by undertakings.
- This agenda seeks the OCC's deliberation on ensuring the availability of 100% accurate and reliable telemetry data from 132 kV and above substations. This is crucial for the reliable operation of SE, RTCA, and DSA tools at both SLDC and ERLDC levels.

ERLDC may explain. Members may discuss.

Deliberation in the meeting

OCC Decision

OCC advised all ER constituents to ensure reliable telemetry from all 132 kV and above stations to ERLDC for proper functioning of essential SCADA tools Real-Time Contingency Analysis (RTCA), State Estimator (SE), etc at both ERLDC and respective SLDCs.

2.19 Submission of Yearly Demand (Hourwise) for 2025-26 by SLDCs for Resource adequacy analysis: ERLDC

- In compliance with the Indian Electricity Grid Code (IEGC) 2023, **NLDC** is in the process of preparing the Short-Term National Resource Adequacy Plan (ST-NRAP) for the financial year 2025-26.
- To support the national-level simulation and ensure the timely completion of the RA plan, SLDCs are kindly requested to submit state-wise data of forecasted hourly demand (MW) for FY 2025-26 by 30th September 2024, as stipulated in IEGC 2023, **Clause 31.2.(h)**.

Members may note.

Deliberation in the meeting

OCC Decision

OCC advised all SLDCs for submission of yearly demand (Hour wise) for 2025-26 at the earliest in compliance to IEGC 2023. This is essential for formulation of short term National Resource Adequacy Plan by NLDC.

ADDITIONAL AGENDA

2.20 Comprehensive AMC proposal for AMR Layer-3/Layer-4 upgradation: Powergrid ER-II

- In 52nd TCC/ERPC meeting, technical solution for Layer3/Layer4 network upgradation in the existing AMR system is in principally agreed.
- In the TCC meeting, it was discussed and deliberated regarding the 3 years AMC cost, which was initially given as 92,36,593 INR. Members have deliberated that the AMC cost was on higher side, and it was further requested to PGCIL to work on the AMC value.
- PGCIL has reverted back to M/S TCS for further discussion on the AMC price and optimize the value. Earlier for AMC cost, 03 Resources are considered, two for states level and one for ERLDC. However, after having detailed discussion on the scope and other areas, it was decided to optimize the resource utilization as one -to-one mode. (one for state level & other for ERLDC). This resource optimization was done as the equipment failure rate of the network hardware devices are negligible in nature, historically. Considering two resources and the other required aspects to provide 3 years comprehensive AMC support, the revised cost of the AMC coming as: **68,35,690 INR (without Taxes)**.

In view of above, followings are proposed: -

1. To carry out the job through M/S TCS in single tender via consultancy mode under AMR Phase-5 scope addition with cost implication of followings: -
 - a. Supply of Hardware Portion :- Rs. 23,10,101/-
 - b. Installation and commissioning Portion- Rs. 46,86,162/-
- } **Already approved in
52nd TCC/ERPC**
- c. AMC Portion (For 3 Years after completion of Warranty)- **Rs. 68,35,690.00 INR without taxes.**

2. **All States/Constituents are required to provide/identify a single node drop point for finalization of proposed architecture for Layer-3/4 upgradation. Same may please be communicated to ERLDC/POWERGRID through return mail.**

Members may please discuss and provide approval on the revised AMC value for placing of LOA to M/S TCS on single tender basis through negotiation.

Final value shall be intimated once the LOA is placed by POWERGRID by **Dec-2024**.

Powergrid ER-II may explain. Members may discuss.

Deliberation in the meeting

In line with decision of 52nd ERPC meeting, Powergrid ER-II submitted the reduced AMC cost of the upgraded AMR project for consideration.

OCC Decision

- *OCC consented to the proposal of Powergrid with revised AMC cost and further opined on vetting the same in next Commercial sub-committee meeting. Meanwhile, Powergrid ER-II may proceed with upgradation of AMR network to Layer-3/Layer-4.*
- *OCC advised all ER constituents for identifying single node/drop point as per proposed architecture and share details of the same with Powergrid at the earliest for implementation.*

2.21 Renewal of AMR AMC Services for 77 SEM Quantity

- *LOAs of AMR system were awarded in phased manner, considering the available number of Meters present at the time of LOA placement which needed to be integrated with existing AMR system. AMR Phase-3 LOA was awarded in Oct-2016 and subsequently a small quantity variation order was placed in Jul-2019 for integration of additional 77 SEM with 5 years AMC. The corresponding AMC for these 77 Meters are valid till 31-Dec-2024. AMC renewal for these Meters is required to carry out the regular AMC job.*
- *Considering the AMC Renewal of these 77 Meters from 01-Jan-25 till 31-Mar-26 (To make uniform AMC completion period of all phases), total cost implication comes to Rs. **14,28,562 INR** (excluding Taxes). Rates are taken from already in force AMC LOA of Phase-1/2 combine (For 656 SEM).*
- *Considering very small cost implications for AMC component, it is proposed for finalization of the AMC contract for proposed 77 SEMs with Quantity Variation of existing LOA, such that AMC of above-mentioned SEM's should continue without any gap.*

Powergrid ER-II may explain. Members may discuss.

Deliberation in the meeting

OCC Decision

- *In view of the uninterrupted support to AMR network, OCC consented to the proposal of renewal of AMC for 77 SEMs till March 2026.*
- *The cost implications need to be vetted in CCM.*

3. PART-C: ITEMS FOR UPDATE/FOLLOW-UP

3.1. ER Grid performance during August 2024.

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month August -2024 were as follows:

AVERAGE CONSUMPTION (MU)	MAXIMUM CONSUMPTION(MU)/ DATE	MAXIMUM DEMAND (MW)	MINIMUM DEMAND (MW)	SCHEDULE EXPORT	ACTUAL EXPORT
		DATE / TIME	DATE / TIME	(MU)	(MU)
572.5 MU	622.0 MU, 31.08.2024	28804 MW, 30.08.2024 at 21:56 Hrs.	17492 MW, 03.08.2024 at 06:29 Hrs.	2931	2818

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

Deliberation in the meeting

The grid performance of ER for the month of August was highlighted.

3.2. Update on Flexible operation of Coal based Thermal Power Plants: ERPC

- ◆ As per gazette notification dated 30.01.2023 issued by CEA regarding flexible operation of coal fired thermal generating units, ramp rate of 2% between 55-70% along with a ramp rate of 3% above 70% was mandated within one year of notification of the regulations,i.e by Jan 2024.
- ◆ The SOP for operating at 55% load with recommendation for necessary training of the plant operators, was also circulated.
- ◆ Relevant communication in this regard was also passed on to State Electricity regulatory Commissions as well as principal secretaries of concerned states outlining measures for execution of CEA regulations.
- ◆ As per above mentioned regulations, coal based thermal generating units, whose implementation shall be as per phasing plan specified by CEA.Implementation plan for unit operation at 40% minimum load in phased manner(pilot+4 phases
- ◆ This phased implementation has been notified, with specific targets and timelines for compliance.
- ◆ A comprehensive report published by CEA on flexible operation coal based thermal power plants highlighting various challenges as well as mitigation plan for achieving 40% minimum technical load

❖ Regarding 55% Minimum Technical Load (MTL)

Thermal GENCOs may share details w.r.t the following:

- a) Whether the target of achieving 55% Technical Minimum Load (MTL) has been met & if not, the reasons for the same & tentative date for achieving the same.
- b) Whether the specified ramp rates outlined in the regulations i.e., 3% for 100-70% load & 2% for 70-55% load have been adhered to, if not, the reasons & tentative date for achieving the same.
- c) How many operators have been trained in your organisation? (May treat this matter as Most Urgent)

Further, it is requested that attendees bring duly filled progress report as per enclosed format on the date of meeting.

❖ **Regarding 40% Minimum Technical Load (MTL) & status of units under pilot phase (May,2023-March,2024).**

Phase	Sector	Organization	Name of Project	Unit No.	Capacity (MW)	Region
Pilot	Central	DVC	MEIJA TPS	8	500	ER
Pilot	State	WBPDCL	SAGARDIGHI TPS	3	500	ER

Thermal GENCOs may share details w.r.t the following:

- ❖ Whether the target of achieving 40% Technical Minimum Load (TML) has been met and if not, the reasons for the same and tentative date for achieving.
- ❖ Whether the specified ramp rates outlined in the regulations, i.e., **3% for 100-70% load, 2% for 70%-55% load, 1% for 40%-55%** have been adhered to. If not, the reasons for behind and tentative date for achieving the target.
- ♦ It is observed that **most of the plant in ER not achieving 55% despite making full use of available resources**. Even though there is a national need for providing tertiary down services, these left out margin are not being used by state sector generators which are not running at 55%.
- ♦ It is essential to address the challenges faced by **intra-state generators** in operating flexibly **up to 55%** and develop an immediate action plan to enhance this flexibility.
- ♦ Without reducing these state generators to the 55% TM, decommitting units from ISGS could lead to a serious shortage during non-solar hours.

As per deliberation in **52nd TCC**:

Regarding 55% Minimum Technical Limit (MTL):

- ❖ WBPDCL updated that all the thermal generating units including that of Kolaghat, are technically capable to operate at 55% MTL, But in absence of appropriate regulations of WBERC, generating units not operating at 55% MTL or below on sustained basis.
- ❖ On behalf of DPL, He informed that DPL Unit #8 is capable of operating at the desired MTL(55%).
- ❖ ED, ERLDC apprised that they have already highlighted the matter to WBERC & WBERC has assured to come up with appropriate regulation to incentivize generators.
- ❖ NTPC, DVC & CESC representatives submitted that all their thermal generating units are

technically capable of operating at 55% MTDL on sustained basis.

- ❖ OPGC updated that all Units are technically capable to operate at 55% MTL.
- ❖ Chief Engineer, GM division,CEA suggested that the thermal units make it mandatory to include the Flexibilization with required ramp rates as per CEA/MOP directives.

Regarding 40% Minimum Technical Load (MTL):

WBPDCCL updated that Sagardighi unit#3 trial run was already done at 40% MTL for a short duration of time & the exact response in continuous operation with specified ramp rates is yet to be ascertained.

- ❖ He further submitted that the unit#3 will be fully capable of operating at 40% MTL at desired ramp rate as per CEA Guidelines by November 2024 after some fine tuning of Governor system by M/S BHEL .
- ❖ DVC updated that the detail report on successful trial operation at 40% MTL of Mejia Unit#8 highlighting the issues faced during trial run, is already shared with CEA & ERPC. However,they are waiting for feedback from M/S BHEL & the same will be updated in the next OCC.
- ❖ OPGC submitted that their 660MW units are technically capable to operate at 40-45% MTL. However, in 210MW units having tube mill boilers, part load operation at 40-45% is not feasible without oil support.
- ❖ GMR also informed that their units are technically capable to operate at 45% MTL without oil support.

TCC decision:

- TCC opined that it would not be prudent to compromise with secure and stable grid operation for commercial considerations.It was further observed that in view of rapid RE capacity addition , flexible operation of existing thermal units is extremely crucial.
- As per MOP letter, TCC suggested all states to take up with respective SERCs for implementation of necessary regulations to facilitate flexible operation of intra-state generating units.
- TCC advised the Generators selected under pilot phase as well as phase-1 to expedite their execution process & complete all the required modification within the stipulated timeframe given by CEA.
- TCC advised DVC and WBPDCCL to take up with BHEL for expediting technical feasibility of sustained operation at 40% MTL.
- TCC opined for regular follow-up of status in OCC.

Thermal GENCOs may update. Members may discuss.

Deliberation in the meeting

OCC Decision

- OCC advised all utilities to ensure stable operation of the respective generating units upto 40% MTL as per CEA phasing plan.(Annex B.3.2)
- DVC and WBPDCCL were advised to share the update on technical feasibility of sustained operation at 40% MTL after taking up with BHEL.

3.3. Amendment in ERLDC Operating procedure after implementation of CERC DSM regulation 2024: ERLDC

CERC DSM Regulation 2024 has been implemented w.e.f. 16th September 2024. Accordingly in line with CERC DSM Regulation 2024, volume slabs for different deviation message types changed for the General seller. Changes were intimated to also stakeholders vide ERLDC letter no **ERLDC/SO/DSM/148-Op.Corr. /2024/640** dated 12-09-2024. The same has been incorporated in the ERLDC operating procedure section 3.5.4 and uploaded in the website in the following link.

<https://app.erldc.in/Content/Upload/System%20Study/Operating%20Procedure/ER%20Operation%20Procedure%202024-25%20Rev-2.pdf>

Members may note.

Deliberation in the meeting

ERLDC apprised of the alterations made in the Eastern Region operating procedure in line with newly implemented CERC DSM Regulation 2024.

Members noted.

3.4. Update on Implementation of AGC in Intra-state generating units: ERLDC

- ◆ AGC is now operational at most ISGS plants across India, which together have a total installed capacity exceeding 70 GW. However, the dispatchable margin provided through AGC and Secondary Reserve Ancillary Services (SRAS) remains insufficient for maintaining frequency within the IEGC band. With the increasing penetration of renewable energy, managing frequency is expected to become more challenging in the future. Therefore, it is crucial to enhance frequency control and stability through increased participation from intra-state AGC.
- ◆ In response to this need, efforts are underway to encourage more intra-state generators to join the SRAS scheme. Feasibility reports have been prepared, and stakeholder meetings have been held with DVC, West Bengal, and Bihar to explore potential solutions and address any concerns.
- ◆ Present status of **Intra-state AGC integration** process is as follows:

SLDC/State	Generator name	Unit Capacity (MW)	Status
Bihar	Barauni unit # 8 & 9	2x250	Pending discussion between NTPC Barauni, SLDC Bihar and its DISCOM for mutually agreeing to Mechanism for recovery of one-time cost of AGC implementation and Mechanism for Sharing of gains which is to be fixed bilaterally.
DVC	Mejia-B, DSTPS and Koderma	(2x500) (2x500) (2x500)	Final procurement order was awarded to Siemens on 7th August 2024 with timeline of completion of 4 months .

West Bengal	Units of WBPDCCL	-	West Bengal SERC notified WBERC (Ancillary Services) regulation, 2023 dated 26th December 2023. M/s WBPDCCL refers to WBSERC for implementing the AGC server at WBSLDC after which plants will be connected to SLDC one by one.
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As per deliberation in **52nd TCC**:

- ❖ DVC apprised that final procurement order was awarded to Siemens on 7th August 2024 for all identified six Units & it is expected that within 4 months AGC implementation will be completed.
- ❖ NTPC representative informed that NOC for implementing AGC in its Barauni unit # 8 & 9 is yet to be received from SLDC, Bihar & also discussion is pending between NTPC Barauni, SLDC Bihar and its DISCOM for mutually agreeing to cost recovery and gain sharing mechanism.
- ❖ RED, NTPC mentioned that since the need for AGC Implementation in its Barauni unit # 8 & 9 is principally agreed & for this, a formal clearance from Bihar is required. They will resolve the issue by joint meeting.
- ❖ ED, ERLDC requested SLDC, Odisha to organize a meeting with OPGC to formulate a methodology so that OPGC units can be integrated with AGC.
- ❖ SLDC, Odisha submitted that attempt has been made by OPGC but OEM has not yet responded.
- ❖ OPGC suggested to have a special meeting with M/S BHEL & SLDC, Odisha to finalize the modalities of Implementation of AGC & will update the status within one month.
- ❖ WB SLDC submitted that another meeting shall be convened with WBPDCCL to resolve contractual issues and decide next course of action.

TCC Decision:

- TCC appreciated efforts of DVC in initiating AGC implementation process
- SLDC Bihar and Bihar DISCOMs were advised to resolve the pending issues with NTPC bilaterally for AGC implementation at the earliest.
- SLDC Odisha was advised to organize meeting with OPGC and ERLDC to resolve AGC implementation in OPGC units.
- WB SLDC was advised to resolve contractual issues with WBPDCCL bilaterally for expediting AGC implementation.
- TCC advised all the concerned utilities to expedite the execution process & complete the

AGC Implementation as early as possible.

- Status of AGC implementation to be updated regularly in OCC meetings. All concerned may update the status. Members may discuss.

Deliberation in the meeting

OCC advised all concerned utilities to expedite the AGC implementation process and share the update in subsequent OCC meetings.

3.5. Update on Restriction of Talcher-Kolar HVDC Bi-pole: ERPC

- ❖ On **20th April'24**, ERLDC received one mail from HVDC Talcher stating the requirement of replacement of the R-phase converter transformer necessitating restriction of the power order of HVDC Talcher bi-pole to **1500MW** till the replacement. It was also informed that the spare Converter Transformer of HVDC Kolar is being diverted from HVDC Kolar to HVDC Talcher and is expected to reach HVDC Talcher by **31st May 2024**.
- ❖ Since April'24, either pole of HVDC blocked 5 times out of which, in 4 times the other pole went to ground return mode instead of metallic return mode resulting in overloading of 400kV Talcher-Meeramundali D/C and generation backdown was done either manually or through operation of SPS.
- ❖ Further, while availing the planned shutdown of Pole-2 on 28.04.2024, the other pole didn't go to metallic return mode as the automatic changeover sequence failed and remained in Ground return mode for around 15 minutes.

As per deliberation in **217th OCC**:

- ❖ The updated status as per latest communication from Powergrid Odisha dated 22.07.2024:
 - Cumulative distance travelled from Kolar is 929 kms against total distance 1910 kms. Balance distance pending to be travelled is 981 kms.
 - He further mentioned that the Converter Transformer may tentatively be reached at site by **last week of September** & after reaching at site, it will take another 15 days to complete the commissioning process.

OCC Decision

OCC advised PowerGrid Odisha to expedite the transport of the converter transformer so that it can be commissioned at the earliest to improve stability & reliability of Grid.

Powergrid Odisha may update the present status of the Converter Transformer. Members may discuss.

Deliberation in the meeting

- ❖ *Powergrid Odisha updated that the converter transformer has reached in the vicinity of HVDC Talcher station, which shall be installed at site by September 2024 and charged by October 2024.*
- ❖ **OCC Decision**
OCC urged Powergrid Odisha to put the converter transformer into operation at the earliest in view of grid security and reliability.

3.6. Non-Submission of FRC data in stipulated timeframe: ERLDC

Adhering to IEGC clauses **30.8** and **30.10.(a)** to **30.10.(q)**, generating stations within the eastern region are required to submit essential data to ERLDC within two days of receiving a notification regarding a reportable frequency event. Additionally, according to clause 30.10.(n), all control areas within the eastern region must assess their frequency response characteristics and share the evaluation, along with high-resolution data, with the ERLDC. If any data is not received or is incomplete, ERLDC resorts to using Scada data (low resolution) to calculate the performance of the respective control area.

Therefore, timely submission of primary response data is crucial for compliance with the **IEGC**. As per deliberation in **215th OCC**:

- All generators whose data submission against frequency events flagged by ERLDC is pending (detailed above in agenda) were advised to submit the necessary FRC data to ERLDC at the earliest.
- All generators were also advised to regularly share high resolution data against each reportable frequency event with ERLDC on time to facilitate accurate assessment of FRP for respective control areas.

In line with the provisions of IEGC 2023, GRID-INDIA has been assessing the **Frequency Response Characteristics (FRC)** for grid events involving load/generation loss of more than 1000 MW or change in frequency by more than 0.1 Hz. In the month of **July-2024 five of such event was reported**. The Plant-wise average response as observed through 10 second SCADA data available at ERLDC & data received from generators is show in the table below. It may be noted that many power plants' performance was poor / below average and data received status also very poor from most of the plants. Respective plants/State control area may explain reasons behind deficiency in performance and all utilities may follow the timeline.

The latest data receipt status is given below: (as on **17.09.2024**)

STATIONS		03.04.2024	06.04.2024	19.04.2024	04.06.2024	11.06.2024	17.06.2024	19.06.2024	16.07.2024	23.08.2024	13.09.2024
		05:29	11:24	10:28	10:34	14:10	13:53	12:42	22:10	12:34	13:15
FSTPP #STG 1 & 2	ISGS	Pending	Pending	Pending	Received	Received	Pending	Pending	Received	Pending	Pending
FSTPP #STG3	ISGS	Pending	Pending	Pending	Pending	Received	Pending	Pending	Pending	Pending	Pending
KHSTPP #STG1	ISGS	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
KHSTPP #STG2	ISGS	Pending	Received	Received	Pending	Pending	Received	Received	Received	Received	Received
TSTPP #STG1	ISGS	Received	Received	Received	Received	Received	Received	Pending	Received	Received	Pending
Barh stage-1	ISGS	Pending	Pending	Pending	Received	Received	Received	Received	Received 29.07	Received	Received
Barh stage-2	ISGS	Pending	Pending	Pending	Received	Received	Received	Pending	Received	Received	Received
BRBCL	ISGS	Pending	Pending	Received	Pending	Pending	Pending	Pending	Pending	Received	Received
Darlipalli	ISGS	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
North Karanpura	ISGS	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Received	Received	Received
NPGC	ISGS	Received	Received	Received	Received	Pending	Received	Received	Received	Received	Received
TEESTA V	ISGS	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	Pending	Pending	Pending
GMR	CPP	Received	Received	Received	Received	Received	Received	Pending	Received	Received	Pending
MPL	CPP	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received
ADHUNIK	CPP	Received	Received	Received	Received	Received	Received	Received	Received	Received	Pending
JITPL	CPP	Received	Received	Received	Received	Received	Received	Received	Received	Pending	Pending
INDBHARAT	CPP	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
TASHIDING	CPP	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
TEESTA III	CPP	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	Pending	Pending	Pending
DIKCHU	CPP	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	PLANT OUT	Pending	Pending	Pending
TALCHER STG2	ISGS	Received	Received	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
Bihar	STATE	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
Jharkhand	STATE	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending
DVC	STATE	Pending	Pending	Pending	Received	Pending	Pending	Pending	Pending	Pending	Pending
OPTCL	STATE	Received	Received	Received	Received	Received	Received	Received	Received	Pending	Pending
WB	STATE	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending	Pending

Hence all are again requested to follow the stipulated timeline and submit the data to ERLDC and also fill the google sheet below to include the email address where notifications of reportable events should be sent.

https://docs.google.com/spreadsheets/d/1slvAOMQIEQVIMn0LnB78eKMa2sz2QYICZ-sPEpeV_jk/edit?usp=sharing

ERLDC may explain. Members may discuss.

Deliberation in the meeting

OCC decision:

All generators were advised to regularly share high resolution data against each reportable frequency event with ERLDC on time to facilitate accurate assessment of FRP for respective control areas.

3.7. Regarding Non-Submission of Forecasting Data from States: ERLDC

The **Clause 2 of Regulation 31** of IEGC 2023 has mandated all the SLDCs to timely submit the demand estimate data to the respective RLDC and RPC.

The demand estimation data provided by SLDCs will be required in resource adequacy planning and regional load forecasts conducted by the RLDC. As a part of Handholding initiative ERLDC has successfully imparted training on forecasting to all the states. Currently, the day ahead data is regularly received from all the states except Sikkim. ERLDC is also not receiving the weekly and monthly data as well from all the states.

The latest Forecast receipt status is shown below:

As on 01.09.2024	Forecast Receipt Status		
Entity Name	Day Ahead	Week Ahead	Month Ahead
Jharkhand	Regular	Regular	Received (1 st Time)
West Bengal	Regular	Not Received	Not Received
DVC	Regular	Regular	Not Received
BIHAR	Regular	Regular	Regular
SIKKIM	Regular	Regular	Received (1 st Time)
ODSHA	Regular	Not Received	Not Received

- ◆ Hence it is again requested to all the concerned for timely submission of demand estimation data to ERLDC. This collaboration is essential for effective planning and preparedness to meet the region's electricity demands efficiently and reliably.

ERLDC may explain and all SLDCs may update. Members may discuss.

Deliberation in the meeting

OCC decision

- ❖ OCC advised all SLDCs for strictly adhering to the schedule of demand estimation as mandated in IEGC 2023, timely sharing with ERLDC as well as uploading of forecasting error on their respective websites.
- ❖ SLDCs who are submitting day ahead forecast were advised to also share the forecasting data on weekly as well as monthly basis with ERLDC.
- ❖ SLDC Odisha was advised to expedite implementation of the demand forecasting software.
- ❖ Besides day ahead forecast, West Bengal SLDC was also advised to share weekly and monthly forecast respectively for their control area.

3.8. Mock Islanding test: ERLDC

As per **IEGC cl. 29(11)**, Mock drills of the islanding schemes are to be carried out annually by the respective RLDCs in coordination with the concerned SLDCs and other users involved in

the islanding scheme. In case a mock drill with field testing is not possible to be carried out for a particular scheme, simulation testing shall be carried out by the respective RLDC. Presently, the following islanding schemes are present in the Eastern Region:

Station/System	State/Country	Installed Capacity (MW)
CHPC	Bhutan	84
CESC	West Bengal	750 (3 x 250 MW)
NALCO	Odisha	1200
ICCL	Odisha	258 (2 x 54 MW + 1 x 30 MW + 2 x 60 MW)
RSP	Odisha	255 (2 x 60 MW + 3 x 45 MW)
Bhushan Power & Steel	Odisha	506
Aryan ISPAT and power Ltd.	Odisha	18
Maithon Ispat Limited	Odisha	30
Hindalco	Odisha	467.5
IMFA	Odisha	258 (2 X 54 MW+ 1 X 30 MW + 2 X 60 MW)
VAL	Odisha	1215 (9 X 135 MW)
Bakreswar Islanding Scheme	West Bengal	1050 (5 x 210 MW)
Tata Power Haldia Islanding Scheme	West Bengal	120 (2 x 45 MW+ 1 x 30 MW)
Bandel Islanding Scheme	West Bengal	215
Narbheram Power & Steel Pvt. Ltd (Dhenkanal) Islanding Scheme	West Bengal	8
CTPS Islanding Scheme	DVC	500

*CTPS Islanding Scheme was inadvertently missed in the last two agendas.

- ◆ These islanding schemes shall be reviewed and augmented depending on the assessment of critical loads at least once a year or earlier if required.
- ◆ Therefore, all the concerned SLDCs are requested to coordinate with respective users and share a plan for conducting a Mock test or in case a mock test not possible then may share the following data for conducting simulation studies:
 1. **Update Network (in PSSE file)**
 2. **Update LGBR details of the island node wise (in PSSE file)**
 3. **Machine dynamic data as per FTC documents of ERLDC**
 4. **Islanding logic**

Letters have already been issued to the SLDCs regarding the sharing of the above information, but any response is yet to come. It is again requested that all the concerned SLDCs may expedite.

Deliberation in the meeting

OCC Decision:

- *OCC advised all the Concerned SLDCs to share plan to conduct Annual Mock Islanding test with ERLDC at the earliest possible as mandated in **IEGC 2023. {cl. 29(11)}***
- *In case of non-feasibility of mock test, OCC advised SLDCs on sharing following details of respective users with ERLDC for carrying out simulation studies:*
 - *Update Network (in PSSE file)*
 - *Update LGBR details of the island node wise (in PSSE file)*
 - *Machine dynamic data as per FTC documents of ERLDC*
 - *Islanding logic*

3.9. Periodic Mock Drill Exercises in areas of generation, transmission and distribution of the power sector: ERPC

In compliance to **Disaster Management Plan for Power Sector (2022)** as drafted by CEA(as per Disaster Management Act 2005) and approved by Ministry of Power (Govt. of India) as well as in order to be prepared for any eventuality, periodic mock drill exercises are to be undertaken in various areas of generation, transmission and distribution of the power sector by considering various crisis and disaster situations like an earthquake, floods etc. Depending on the vulnerability of the installations/plant, mock drills to handle such situations need to be undertaken. The utilities are also required to ensure that at least one mock drill exercise for every crisis/disaster situation to which the installation/plant is vulnerable is undertaken in each quarter. The adverse observations made on each event of Mock drill should be taken into account and it should be ensured to prevent occurrence of such undesirable events in the future.

□ Action points:

As per deliberation of **1st MEETING ON REGIONAL DISASTER MANAGEMENT (EASTERN REGION)** dated **09.07.2024**:

- ◆ At least one mock drill exercise for every crisis/disaster situation to which the installation/plant is vulnerable must be undertaken in each quarter and quarterly report by the utilities to be shared with CEA for review and onward submission to Ministry of Power (Govt of India) . (Action: All thermal GENCOs (Central,IPP), all hydro generating stations, all ISTS licensees . SLDCs to coordinate with respective GENCOs,STUs and DISCOMs within their jurisdiction)
- ◆ Utilities are requested to share the experience on the mock drill exercises and scope for improvements.

All concerned utilities may update action plan.

Deliberation in the meeting

OCC advised all the utilities to:

- *Conduct periodic Mock Drills i.e. at least one mock drill exercise in each quarter to which the installation/plant is vulnerable in order to be prepared for any unforeseen eventuality.*
- *Share Quarterly mock drill reports with ERPC which will then be sent to CEA for review & finally report will be submitted to Ministry of Power (Govt of India).*

3.10. Commissioning Status of ADMS: ERLDC

- ◆ The automatic demand management scheme (ADMS) has been already commissioned in West Bengal, DVC, Odisha, and Jharkhand and partially implemented by Bihar.
- ◆ In the 216th OCC meeting the forum advised Bihar to share detailed action plan for implementation of additional 400 MW load under ADMS.
- ◆ It was also advised by the forum that DVC to share revised feeder list with ERLDC in which ADMS to be implemented after operationalization of Chandrapura islanding scheme.
- ◆ **Current Status (as of July 18, 2024):** No input received from Bihar and DVC.
- ◆ Bihar & DVC may update the Status.

Deliberation in the meeting

SLDC Bihar was directed to update the ADMS commissioning status i.r.o additional 400 MW load.

4. PART-D: OPERATIONAL PLANNING

4.1. Anticipated power supply position during October-2024

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of October 2024 is prepared by ERPC Secretariat (**Annexure D.1**) on the basis of LGBR for 2024-25 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc.

Members may update.

Deliberation in the meeting

The updated anticipated power supply position for October 2024 is provided at **Annexure D.1**

4.2. Major Thermal Generating Units/Transmission Element outages/shutdown in ER Grid (as on as on 13-08-2024)

a) **Thermal Generating Stations outage report:**

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	BARAUNI TPS	BIHAR	NTPC	7	110	Poor condenser vacuum	19-Jul-2023
2	BARAUNI TPS	BIHAR	NTPC	6	110	Low vacuum	22-Jul-2023
3	MEJIA TPS	DVC	DVC	5	250	Boiler Tube Leakage	17-Sep-2024
4	BAKRESH WAR	WEST BENGAL	WBPDC	5	210	Turbine high vibration.	05-Sep-2024
5	Sterlite	ODISHA	SEL	3	600	Ash evacuation problem	18-Sep-2024
6	NABINAGAR(BRBC L)	BIHAR	NTPC	1	250	Generator Protection Operated	15-Sep-2024
7	BARH	BIHAR	NTPC	2	660	Abnormal sound from boiler	17-Sep-2024
8	NABINAGAR(NPGC)	BIHAR	NTPC	1	660	Boiler Tube Leakage	17-Sep-2024
9	NORTH KARANPURA	JHARKHAND	NTPC	1	660	Boiler Tube Leakage	18-Sep-2024
10	KOLAGHAT	WEST BENGAL	WBPDC	6	210	Capital Overhauling	11-Jul-2024

11	SAGARDI GHI	WEST BENGAL	WBPDC	2	300	Annual Overhauling	07-Aug- 2024
12	TENUGH AT	JHARKH AND	TVNL	2	210	Annual Overhauling	21-Aug- 2024
13	MEJIA TPS	DVC	DVC	1	210	Annual Overhauling	14-Sep- 2024
14	KHSTPP	BIHAR	NTPC	6	500	For annual overhauling	20-Aug- 2024
15	TSTPP	ODISHA	NTPC	2	500	Annual Overhauling	19-Aug- 2024

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

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

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	SOUTHERN	WEST BENGAL	CESC	1	67.5	Low system demand	06-Sep-2024
2	SOUTHERN	WEST BENGAL	CESC	2	67.5	Low system demand	24-Aug-2024

c) Hydro Unit Outage Report:

S. NO	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	TEESTA STG III Hep	SIKKIM	TUL	1-6	200x6	Sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in Teesta River and damage of Teesta III Dam & downstream Powerhouses	04-Oct-2023
2	TEESTA STG III Hep	SIKKIM	TUL				
3	TEESTA STG III Hep	SIKKIM	TUL				
4	TEESTA STG III Hep	SIKKIM	TUL				
5	TEESTA STG III Hep	SIKKIM	TUL				
6	TEESTA STG III Hep	SIKKIM	TUL				
7	DIKCHU Hep	SIKKIM	SKPPL	1-2	48x2	Sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in Teesta River and damage of	04-Oct-2023

8	DIKCHU Hep	SIKKIM	SKPPL			Teesta III Dam & downstream Powerhouses	
9	TEESTA HPS	SIKKIM	NHPC	1-3	170x3	Sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in Teesta River and damage of Teesta III Dam & downstream Powerhouses	04-Oct-2023
10	TEESTA HPS	SIKKIM	NHPC				
11	TEESTA HPS	SIKKIM	NHPC				
12	CHIPLIMA HPS / HIRAKUD II	ODISHA	OHPC	1	24	Capital Overhauling	15-Dec-2023
13	BALIMELA HPS	ODISHA	OHPC	2	60	High Turbine Vibration	19-May-2024

d) Long outage report of transmission lines (As on 18.09.2024):

Transmission Element / ICT	Outage From	Reasons for Outage
220/132KV 100 MVA ICT II AT LALMATIA	22.01.2019	Commissioning work of 220/132KV, 100MVA Transformer and its associated control Panel under progress.
220/132KV 100 MVA ICT 3 AT CHANDIL	30.04.2020	Due to Fire hazard ICT damaged and burnt.
220KV-FSTPP-LALMATIA-I	21.04.2021	Transmission line is idle charged between Lalmatia GSS end up to Tower loc no 94 (50.30km)
220KV-WARIA-BIDHANNAGAR-1 & 2	08.06.2022	To control overloading of 220 kV Waria-DSTPS (Andal) D/C line
400/220KV 315 MVA ICT 2 AT PATRATU	27.09.2022	ICT tripped on few occasions due to Buchholz later DGA violation found, internal fault in transformer to be rectified. (DGA violation)
132KV-BARHI-RAJGIR-1	25.03.2023	Dismantling of tower no. 227, 228, and 229 crossing the premises of Mahabodhi Cultural centre along with Destraining of conductor of both circuits and Earth wire between tension tower no. 218-237 in same line.
132KV-NALANDA-BARHI(DVC)-1	25.03.2023	
400KV-RANGPO-TEESTA-V-1 & 2	04.10.2023	Tower near gantry of Teesta V powerhouse collapsed due to sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in TEESTA river and damage of Teesta III Dam & downstream Powerhouses
400KV-TEESTA-III-RANGPO-1	04.10.2023	Hand tripped from Teesta-III end due to sudden cloudburst at glacier fed

400KV-TEESTA-III-DIKCHU-1	04.10.2023	LOHNAK Lake followed by huge inrush of water in TEESTA river and damage of Teesta III Dam & downstream Powerhouses
400KV-RANGPO-DIKCHU-1	04.10.2023	Hand tripped from Rangpo end due to sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in TEESTA river and damage of Teesta III Dam & downstream Powerhouses
400KV-KHSTPP-BANKA (PG)-1	24.02.2024	Switchyard bay updation work
400KV-JHARSUGUDA-ROURKELA-3&4	01.04.2024	Reconductoring work
132KV-MADHEPURA (BH)-SAHARSA(PMTL)-1	04.04.2024	To control loading on 132kV Madhepura-Saharsa line
400KV/220KV 315 MVA ICT 2 AT RENGALI	07.05.2024	Commissioning of ICT-2 at Rengali under ADD CAP 2019-24
132KV-RANGPO-SAMARDONG-1	22-05-2024	Rangpo:Y-n fault with fault distance 0.157 km ,14.562kA Samardong: NA
220KV-RAJARHAT-NEW TOWN(AA-II)-2	10-07-2024	Rectification of gas leakage problem from B-Ph breaker pole; Line declared under breakdown after charging attempt after return of shutdown
220KV/132KV 160 MVA ICT 2 AT BIRPARA	30-07-2024	Differential protection operated & On internal inspection, subject Transformer found damaged considerably and can not be taken in service before repairing. Considering the urgency, available spare ICT has already been diverted from Siliguri SS.
132KV-RANGPO-SAMARDONG-2	02-08-2024	132/66/11kV Samardong ss have become inaccessible due to continuous raining and landslides. It is very difficult for round the clock deployment of shift manpower due to road non-accessibility
220KV-DALKHOLA-PURNEA-1	28-08-2024	Replacement of isolators
HVDC 500KV TALCHER POLE 1 & 2	06-09-2024	Line diversion works for facilitating construction of Nadikudi-Srikalahasti Railway crossing.
400KV-TSTPP-TALCHER HVDC-1,2,3 & 4	08-09-2024	Maintenance work

Transmission licensees/ Utilities are requested to update expected restoration date & work progress regarding restoration regularly to ERLDC/ERPC on monthly basis by 5th of each

month so that status of restoration can be reviewed in OCC. Utilities are also requested to update outage of any elements within their substation premises like isolator/breaker to ERLDC/ERPC regularly. (Reported as per Clause 5.2(e) of IEGC)

Deliberation in the meeting

Members noted.

4.3. Commissioning of new units and transmission elements in Eastern Grid in the month of August -2024.

The details of new units/transmission elements commissioned in the month of August-2024 based on the inputs received from beneficiaries:

NEW ELEMENTS COMMISSIONED DURING August, 2024							
GENERATING UNITS							
SL. NO.	Location	Owner/ Unit name	Unit No / Source	Capacity added (MW)	Total/Installed Capacity (MW)	DATE	Remarks
NIL							
ICTs/ GTs / STs							
SL. NO.	Agency/ Owner	SUB-STATION	ICT NO	Voltage Level (kV)	CAPACITY (MVA)	DATE	Remarks
1	PGCIL	ARA (PG)	4	220/132 kV	200	15-08-2024	
TRANSMISSION LINES							
SL. NO.	Agency/ Owner	Line Name	Length (KM)	Conductor Type	DATE	Remarks	
1	BSPTCL	220KV-PUSAULI-NADHOKAR-2	6.504	HTLS Conductor	10-08-2024		
2	OPTCL	132KV-BARIPADA(PG)-BANGIRIPOSHI-2	31.23	ACSR Panther	01-08-2024		
LILO/RE-ARRANGEMENT OF TRANSMISSION LINES							
SL. NO.	Agency/ Owner	Line Name/LILO at	Length (KM)	Conductor Type	DATE	Remarks	
NIL							
BUS/LINE REACTORS							
SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks	

NIL						
BUS						
SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks
NIL						
BAYS						
SL. NO.	Agency/ Owner	Element Name	SUB-STATION	Voltage Level (kV)	DATE	Remarks
1	PGCIL	Main Bay of 132KV-BARIPADA(PG)-BANGIRIPOSHI-2 at Baripada(PG)	Baripada	132	01-08-2024	
2	DVC	220KV MAIN BAY OF 315 MVA ICT 2 AT MTPS-B.	MTPS-B	220	22--08-2024	facilitated first time charging of 220kV bay of the ICT-2 at MTPS-B
3	PGCIL	220 kV Main Bay (203) of ICT-4 at ARA Substation.	ARA	220	15-08-2024	
4	PGCIL	132 kV Main Bay (106) of ICT-4 at ARA Substation.	ARA	132	15-08-2024	

Members may note.

Deliberation in the meeting

Members noted.

4.4. UFR operation during the month of August 2024.

Frequency profile for the month as follows:

MONTH	MAX	MIN	% LESS IEGC BAND	% WITHIN IEGC BAND	% MORE IEGC BAND
	(DATE/TIME)	(DATE/TIME)			
August, 2024	50.45 Hz on 27-08-2024 at 13:02 hrs	49.56 Hz on 13-08-2024 at 19:20 hrs	4.66	75.02	20.32

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

Deliberation in the meeting

Members noted.

Annex A

Participants in 219th OCC Meeting

Venue: ERPC Conference Hall, Kolkata

Time: 10:30 Hrs.

Date: 24.09.2024 (Tuesday)







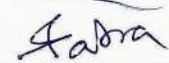
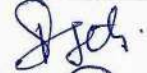
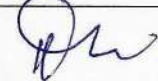




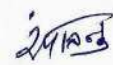

Sl.	Name	Designation	Organisation	Contact No.	E-mail Id	Signature
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15	Aarif Md	Sr. Mgr	(DICKHU)HEP	9933370011	arif.md@greenroenergyprojects.com	

Participants in 219th OCC Meeting

Venue: ERPC Conference Hall, Kolkata

Time: 10:30 Hrs.

Date: 24.09.2024 (Tuesday)

Sl.	Name	Designation	Organisation	Contact No.	E-mail Id	Signature
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Participants in 219th OCC Meeting

Venue: ERPC Conference Hall, Kolkata

Time: 10:30 Hrs.

Date: 24.09.2024 (Tuesday)

Sl.	Name	Designation	Organisation	Contact No.	E-mail Id	Signature
31	L. MURALIKRISHNA	Sr. SGM	ERLDC	9801332527	lmuralikrishna@grid-india.in	L. Mul
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45	SUDEEP EKKA	SM (Engg)	JUSNL	9717694926	sudeepekka48bit@gmail.com	Sudeep

Participants in 219th OCC Meeting

Venue: ERPC Conference Hall, Kolkata

Time: 10:30 Hrs.

Date: 24.09.2024 (Tuesday)

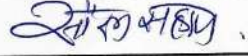


Sl.	Name	Designation	Organisation	Contact No.	E-mail Id	Signature
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Participants in 219th OCC Meeting

Venue: ERPC Conference Hall, Kolkata

Time: 10:30 Hrs.

Date: 24.09.2024 (Tuesday)

Sl. No.	Name	Designation	Organisation	Contact No.	E-mail Id	Signature
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63	Agniva Chatterjee	AD	ERPC	8100307502	agniva.cea@gov.in	
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Annex B.2.5

Certificate No	RLC25/BLR/SR/24/68-	Page No	1 of 3
Test Date	03/09/2024	Next Test Date	02/09/2025
Name of the Company	M/s. Sneha Kinetic Power Project Pvt. Ltd., 2 x 48MW Hydro Plant, Greenko Group, Site: Dikchu, Sikkim.		
Location	400/132KV GIS Sub-Station		
System	400KV Teesta III Line Bay-3 (R3A)		

Test Certificate For Distance Protection Relay [Main – 1 21M1]

1.0. Details:

Make	Alstom
Type	P444
Model No	P44491656M0710M
Vx	100-250V.DC, 100-120V.AC
In	1/5A
CTR	3000/1A
Line Length	15.10km
Line Impedance	3.825Ω
Line Angle	86.60°
PTR	400KV/110V
Sl. No.	33376271/07/15

2.0. Test Results

A) Zone – 1:

Fault Type	Impedance In (Ω)	Pick Up In (Ω)	Time Set In (Sec)	Time Taken In (m. Sec)
RY	3.063	3.063	0.0	38.0
YB	3.063	3.063	0.0	38.0
BR	3.063	3.063	0.0	38.0
Rn	3.063	3.063	0.0	38.0
Yn	3.063	3.063	0.0	40.0
Bn	3.063	3.063	0.0	40.0
RYB	3.063	3.063	0.0	40.0

B) Zone – 2:

Fault Type	Impedance (Ω)	Pick Up In (Ω)	Time Set In (m Sec)	Time Taken In (m. Sec)
RY	5.742	5.742	350.0	359.0
YB	5.742	5.742	350.0	356.0
BR	5.742	5.742	350.0	356.0

Rn	5.742	5.742	350.0	357.0
Yn	5.742	5.742	350.0	357.0
Bn	5.742	5.742	350.0	357.0
RYB	5.742	5.742	350.0	360.0

C) Zone – 3:

Fault Type	Impedance (Ω)	Pick Up In (Ω)	Time Set In (Sec)	Time Taken In (Sec)
RY	22.40	22.40	1.0	1.038
YB	22.40	22.40	1.0	1.041
BR	22.40	22.40	1.0	1.042
Rn	22.40	22.40	1.0	1.042
Yn	22.40	22.40	1.0	1.039
Bn	22.40	22.40	1.0	1.042
RYB	22.40	22.40	1.0	1.043

D) Zone – 4:

Fault Type	Impedance (m Ω)	Pick Up In (m Ω)	Time Set In (m Sec)	Time Taken In (m Sec)
RY	764.8	764.8	500.0	509.0
YB	764.8	764.8	500.0	512.0
BR	764.8	764.8	500.0	510.0
Rn	764.8	764.8	500.0	510.0
Yn	764.8	764.8	500.0	514.0
Bn	764.8	764.8	500.0	516.0
RYB	764.8	764.8	500.0	515.0

E) Power Swing:

Phase	Delta R Ω	Delta X Ω	Time Set in (Sec)	Time Taken in (Sec)
RYB	6.158	6.158	3.0	3.024

Broken Conductor:

Current Set In (mA.AC)	Pick Up in (mA.AC)	Time Set In (Sec)	Time Taken In (Sec)
200.0	200.0	6.0	6.454

F) Over Voltage: Stage-1

Phase	Voltage Set In (KV.AC)	Pick Up in (KV.AC)	Time Set In (Sec)	Time Taken In (Sec)
RYB	440.0	400.0	6.0	6.028

Stage-2:

Phase	Voltage Set In (KV.AC)	Pick Up in (KV.AC)	Time Set In (m Sec)	Time Taken In (m Sec)
RYB	560.0	560.0	100.0	148.0

G) Backup:

Phase	Current Set In (KA.AC)	Pick Up in (KA.AC)	Time Set In (Sec)	Time Taken In (Sec)
I>	9.0	9.0	3.0	3.085
I>>	7.50	7.50	0.0	49ms

3.0. Accuracy & Status:

Accuracy	Status
With In The Limit	Tested Good

Test Engineer	For Customer Representative	For RELTEC Engineers Proprietor
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Certificate No	RLC25/BLR/SR/24/68-	Page No	1 of 2
Test Date	03/09/2024	Next Test Date	02/09/2025
Name of the Company	M/s. Sneha Kinetic Power Project Pvt. Ltd., 2 x 48MW Hydro Plant, Greenko Group, Site: Dikchu, Sikkim.		
Location	400/132KV GIS Sub-Station		
System	400KV Teesta III Line Bay-3 (R3A)		

Test Certificate For Peripheral Unit BB Protn. Relay [PUA]

1.0. Details:

Make	Alstom
Type	P743
Model No.	P743916A6M0510K
In	1/5A
CTR	3000/1A
PTR	400KV/110V
Vx	110 - 250V.DC, 100 -240V.AC
Sl. No.	33402867/08/15

2.0. Test Results:

A) Measurement Current Elements:

Current Applied In (A. AC)	Measured in (A.AC)		
	R	Y	B
0.5	1500.03	1500.02	1500.054
1.0	3000.04	3000.02	2999.96

Voltage Elements:

Phase	Voltage Applied In (V.AC)	Measured in (KV.AC)	
		To Be	Found
RY	110.0	400.0	400.01
YB	110.0	400.0	400.04
BR	110.0	400.0	400.02

Frequency Test:

Frequency Applied in (Hz)	Frequency Measured In (Hz)
50	50.02

B) Dead Zone Protection:

Current Setting In (KA.AC)	Pick up in (KA.AC)	Time Setting in (m Sec)	Time Taken in (m Sec)
2.760	2.760	50.0	97.0

c) STABLE CONDITION: (LINE 2 PUA –TIE BAYPUA)

Phase	Current Applied In (A.AC)		Current Applied In (A.AC)		Condition
R	1.0	0°	1.0	180°	Stable
Y	1.0	-120°	1.0	60°	Stable
B	1.0	120°	1.0	300°	Stable

d) UNSTABLE CONDITION: (LINE 2 PUA –TIE BAY PUA)

Phase	Current Applied In (A.AC)		Current Applied In (A.AC)		Condition
R	1.0	0°	1.0	0°	Unstable
Y	1.0	-120°	1.0	-120°	Unstable
B	1.0	120°	1.0	120°	Unstable

e) CB FAIL:

Current Setting In (A.AC)	Pick up in (A.AC)	TS1 In (m Sec)	TS2 In (m Sec)	External TS3 In (m Sec)	TS4 In (m Sec)
600.0	600.0	50.0	200.0	50.0	200.0

3.0. Accuracy & Status:

Accuracy	Status
With In The Limit	Tested Good

Test Engineer	For Customer Representative	For RELTEC Engineers
		Proprietor

Certificate No	RLC25/BLR/SR/24/68-	Page No	1 of 2
Test Date	03/09/2024	Next Test Date	02/09/2025
Name of the Company	M/s. Sneha Kinetic Power Project Pvt. Ltd., 2 x 48MW Hydro Plant, Greenko Group, Site: Dikchu, Sikkim.		
Location	400/132KV GIS Sub-Station		
System	400KV GIS Teesta III Line Bay-3 (R3B)		

Test Certificate For Distance Protection Relay [Main – 2 21M2]

1.0. Details:

Make	ABB
Type	REL670
CTR	3000/1A
PTR	400KV/110V
Sl. No.	I1531036

2.0. Test Results

A) Zone – 1:

Fault Type	Impedance In (Ω)	Pick Up In (Ω)	Time Set In (Sec)	Time Taken In (m. Sec)
RY	3.05	3.05	0.0	39.0
YB	3.05	3.05	0.0	41.0
BR	3.05	3.05	0.0	41.0
Rn	3.05	3.05	0.0	40.0
Yn	3.05	3.05	0.0	39.0
Bn	3.05	3.05	0.0	40.0
RYB	3.05	3.05	0.0	41.0

B) Zone – 2:

Fault Type	Impedance In (Ω)	Pick Up In (Ω)	Time Set In (m Sec)	Time Taken In (m. Sec)
RY	5.73	5.73	350.0	359.0
YB	5.73	5.73	350.0	360.0
BR	5.73	5.73	350.0	358.0
Rn	5.73	5.73	350.0	358.0
Yn	5.73	5.73	350.0	357.0
Bn	5.73	5.73	350.0	357.0
RYB	5.73	5.73	350.0	358.0

C) Zone – 3:

Fault Type	Impedance In (Ω)	Pick Up In (Ω)	Time Set In (Sec)	Time Taken In (Sec)
RY	22.34	22.34	1.0	1.041
YB	22.34	22.34	1.0	1.039
BR	22.34	22.34	1.0	1.044
Rn	22.34	22.34	1.0	1.045
Yn	22.34	22.34	1.0	1.044
Bn	22.34	22.34	1.0	1.043
RYB	22.34	22.34	1.0	1.042

D) Zone – 4:

Fault Type	Impedance In (Ω)	Pick Up In (Ω)	Time Set In (m Sec)	Time Taken In (m Sec)
RY	0.76	0.76	500.0	510.0
YB	0.76	0.76	500.0	509.0
BR	0.76	0.76	500.0	509.0
Rn	0.76	0.76	500.0	507.0
Yn	0.76	0.76	500.0	511.0
Bn	0.76	0.76	500.0	511.0
RYB	0.76	0.76	500.0	514.0

F) Over Voltage: Stage-1

Phase	Voltage Set In (V.AC)	Pick Up in (V.AC)	Time Set In (Sec)	Time Taken In (Sec)
RYB	110.0% UB	110.0% UB	5.0	5.067

Stage-2:

Phase	Voltage Set In (V.AC)	Pick Up in (V.AC)	Time Set In (m Sec)	Time Taken In (m Sec)
RYB	140.0%UB	140.0%UB	100.0	179.0

G) TEF: (DEF) O/C:

Phase	Current Set In (A.AC)	Pick Up in (A.AC)	TMS	2 Time Taken In (Sec)
E/F	0.20	0.20	0.21	2.390

3.0. Accuracy & Status:

Accuracy	Status
With In The Limit	Tested Good

Test Engineer	For Customer Representative	For RELTEC Engineers Proprietor
---------------	-----------------------------	------------------------------------

Certificate No	RLC25/BLR/SR/24/68-	Page No	1 of 2
Test Date	03/09/2024	Next Test Date	02/09/2025
Name of the Company	M/s. Sneha Kinetic Power Project Pvt. Ltd., 2 x 48MW Hydro Plant, Greenko Group, Site: Dikchu, Sikkim.		
Location	400/132KV GIS Sub-Station		
System	400KV GIS Teesta III Line Bay-3 (R3B)		

Test Certificate For Peripheral Unit BB Protn. Relay [PUB]

1.0. Details:

Make	Alstom
Type	P743
Model No.	P743916A6M0510K
Vx	110-250V.DC
	100-240V.AC
In	1/5A
Un.	100/110/115/120V
CTR	3000/1A
PTR	400KV/110V
Sl. No.	33406748/08/15

2.0. Test Results:

a) Measurement Current Elements:

Current Applied In (A. AC)	Measured in (A.AC)		
	R	Y	B
0.5	1500.04	1500.01	1499.99
1.0	3000.03	3000.04	3000.02

Voltage Elements:

Phase	Voltage Applied In (V.AC)	Measured in (KV.AC)	
		To Be	Found
RY	110.0	400.0	400.04
YB	110.0	400.0	400.01
BR	110.0	400.0	399.98

Frequency Test:

Frequency Applied in (Hz)	Frequency Measured In (Hz)
50	49.97

b) Dead Zone Protection:

Current Setting In (KA.AC)	Pick up in (KA.AC)	Time Setting in (m.Sec)	Time Taken in (m.Sec)
2.76	2.76	50.0	77.0

c) STABLE CONDITION: (ICT 1 PUA –LINE1 PUA)

Phase	Current Applied In (A.AC)		Current Applied In (A.AC)		Condition
R	1.0	0°	1.0	180°	Stable
Y	1.0	-120°	1.0	60°	Stable
B	1.0	120°	1.0	300°	Stable

d) UNSTABLE CONDITION: (ICT 1 PUA –LINE 1 PUA)

Phase	Current Applied In (A.AC)		Current Applied In (A.AC)		Condition
R	1.0	0°	1.0	0°	Unstable
Y	1.0	-120°	1.0	-120°	Unstable
B	1.0	120°	1.0	120°	Unstable

e) CB FAIL:

Current Setting In (A.AC)	Pick up in (A.AC)	TS1 In (m Sec)	TS2 In (m Sec)	External TS3 In (m Sec)	TS4 In (m Sec)
600.0	600.0	50.0	200.0	50.0	200.0

3.0. Accuracy & Status:

Accuracy	Status
With In The Limit	Tested Good

Test Engineer	For Customer Representative	For RELTEC Engineers
		Proprietor

Annex B.2.11

Existing AMR in ER
||
New AMR TS- CTU

Salient Features- New AMR TS vs Existing AMR

Salient Feature- AMR	Mentioned in CTU-TS	Present in AMR-ER	Remarks- for ER AMR
Acquiring 5 min load survey data from Meter	YES	YES	Successful POC conducted for 05 min LS data.
System scalable for both 05 min & 15 min Load Survey data handling	YES	YES	Successful POC has been conducted.
Archival and retrieval of data through Standard RDBMS such as SQL/ORACLE database	YES	YES	Microsoft SQL RDBMS is in use for data storing, dumping and archival at ER-AMR.
AMR System at AMR Control Centre at RLDC/RPC and connection of AMR system with existing FOTE at RLDC	YES	YES	LAN/Intranet based communication has been established in ER-AMR. 100% AMR population migrated to LAN based communication.
Each DCU shall be capable to connect at least 30 IEMs for polling on ethernet port over DLMS protocol without any delay in Data Collection process	YES	YES	Data collection from DLMS protocol Meters with max 30 qty is already present in Current AMR system at ER.

Salient Features- New AMR TS vs Existing AMR

Salient Feature- AMR	Mentioned in CTU-TS	Present in AMR-ER	Remarks- for ER AMR
The data exchange & encryption shall be as per the IS 15959 :2011 standard and its amendments	YES	YES	Encryption of Raw data is present in ER-AMR.
Reporting functions- AMR central application	YES	YES	NPC reports (for both 15 min & 05 min LS) along with other required reports are present in ER-AMR as per end user's requirement.
Heterogeneous OEM make Meter integration with AMR.	NA	YES	Present AMR system has 03 different OEM make Meters (L&T, GENUS, SECURE) and many variants. Successful data retrieval happening.
Heterogeneous DCU OEM	NA	YES	Present AMR has 3 different OEM make DCUs. This provides more flexibility in system reducing single OEM dependency.
Logical Segregation in LAN Network by implementing	NA	YES	Upgradation of AMR Network is WIP. This will ensure more

Salient Features- New AMR TS vs Existing AMR

Salient Feature- AMR	Mentioned in CTU-TS	Present in AMR-ER	Remarks- for ER AMR
01 min instant data collection	YES	NO	POC conducted with a single Meter (Secure Apex150) & DCU. Further testing can be done. However, before actual roll-out various aspects to be considered. TCP IP based Meters will be mandatory for implementing this.
Meter data view for SLDC & other Utilities along with RLDC	YES	NO	Present AMR is only accessible for ERLDC. In future Meter data can be shown via web client access (over Intranet) to the required end users. Proper logical access control will be implemented for users based on role & Hierarchy.
Time synchronization of IEMs	YES	NO	This can be done once Meter OEM shares the Admin key for updating Meter time.
DCU shall have dual SIM/dual Internet communication methodology with Auto failover	YES	NO	Using GPRS SIM Card & Public IP for AMR data communication will lead to various security vulnerabilities

Thank

You

*“Unified Real Time Dynamic State Measurement (URTDSM) Project
Phase-II”*

Implementation through RTM route by POWERGRID

Agenda Point for ERPC TeST Committee Meeting

OUTLINE



- Summary of URTDSM Phase-I
- Need for URTDSM Phase-II Project.
- Previous deliberations for inception of Phase-II
- Current status of the project approval
- POWERGRID Proposal for Phase-II

SUMMARY OF URTDSM PHASE-I PROJECT



- Major scope of Works in Phase-I:
 - Establishment of 32 Control Centers across NLDC/RLDC/SLDCs
 - Installation of 1400+ PMUs across various substation pan India.
(Added 500+ PMUs progressively)
 - Analytical application development in association with IITB
- The URTDSM Phase-I system is currently under AMC till Jan2027.
- **Project funding : 70% from PSDF as grant, 30% from POWERGRID's Equity (RTM route)**
- URTDSM Phase-1 was awarded in Jan'2014. Commissioned progressively from 2018 onwards.

URTDSM PHASE-I DETAILS

- URTDSM Phase 1 implementation was taken up in Jan'2014
- URTDSM Project LOA for Packages - I&II placed on - 31.03.2014
- Commissioning done progressively from 2018 to 2021
- Operational Acceptance (region wise) →
- AMC Contract being operated by POWERGRID
- AMC commenced on 19.12.2019
- AMC covered up to Jan 2027

Region	Date of ToC
NR (RLDC, SLDCs of NR)	31.05.2018
NR (NLDC, NTAMC)	19.12.2019
NR (Backup NLDC)	05.03.2021
ER (RLDC and SLDCs of ER)	31.12.2018
NER	20.03.2019
SR-1	30.05.2018
SR-2	28.09.2018
WR-1	31.10.2018
WR-2	31.10.2018

SUMMARY OF URTDSM PHASE-I IMPLEMENTED IN ER



- CONTROL CENTRES: 4 Nos.
 - ERLDC
 - West Bengal, DVC & Orissa
- Total PMUs installed in Phase-I: 300

NEED FOR URTDSM PHASE-II PROJECT:



- Current AMC period will end by Jan'27
- Many software applications and IT components have become obsolete.
- Extension of existing AMC contract is challenging due to End of Life / End of Support.
- Expansion capacity of most of the PDCs is about to exhaust.
- Presently 2800 PMUs are integrated at NLDC level.
- The grid monitoring functions may be affected due to no-availability of support
- New PMUs are being continuously installed to provide more visibility. These may not yield the desired result if Control centres become non-functional.

NEED FOR URTDSM PHASE-II PROJECT:



- The WAMS system installed under URTDSM Phase-I project proved its significance and usefulness to the Grid Operators for wide area monitoring of the Grid and Event Analysis.
- Expanding Indian Power Grid with increased penetration of RE sources and Govt of India's plan to achieve 500GW RE power by 2030, needs Smart Grid tools to proactively monitor, manage, and operate the Grid.
- URTDSM Phase-II project shall have the capability to have advanced WAMS analytics for Oscillation monitoring, Disturbance analysis, inertia monitoring, measurement of RE generator(inverter) response, which shall enhance the Grid observability for efficient and safe operation of the Grid.
- **In view of above all factors, it is imperative to take up URTDSM Phase-II project Urgently.**

SCOPE OF URTDSM PHASE-II PROJECT (AS PER SUB-COMMITTEE REPORT) :

- Brief scope (pan India) of URTDSM Phase-II is
 - Upgrade/Establish PDCs and associated IT Hardware & Software at 34 Control centers (NLDCs, RLDCs and SLDCs)
 - Installation of new PMUs (around 4000 PMUs) as per the philosophy recommended by the sub-committee.
 - Integration of all existing PMUs
 - Development of new Analytical Applications.

BRIEF SCOPE OF WORK IN ER UNDER URTDSM PHASE-II



- Total Control centres : 6 No's
 - ERLDC
 - West Bengal, Orissa, **Bihar***, **Jharkhand*** and DVC SLDCs
- Total PMUs being considered in Ph-II: 425
- Analytical apps at all Control Centers
- Integration of all existing PMUs (including state installed PMUs along with Phase-I PMUs)

PMUs - State wise breakup in ER for Phase-II

State	Scheme	PMUs
Central Sector	URTDSM Phase-II	359
West Bengal		-
Orissa		66
DVC		-
Bihar		-
Jharkhand		-

*** Bihar and Jharkhand SLDCs newly added in Phase-II*

POWERGRID PROPOSAL FOR URTDSM PHASE-II:



1. **URTDSM Phase-2 implementation by POWERGRID** on pan India basis on cost sharing mechanism (**RTM route**) with approval of all RPCs.

- DPR Cost Estimate Rs. 3205 Crores for all SLDCs (pan India) incl. AMC for 7 years:
 - Rs. 1000 Cr for NR SLDCs
 - Rs. 622 Cr for WR SLDCs
 - **Rs. 536 Cr for ER SLDCs**
 - **Approximate Cost Break up SLDC wise: Rs. 106 Crores each for WB, DVC, BR & JH and for Orissa - Rs. 110 Cr**
 - Rs. 687 Cr for SR SLDCs
 - Rs. 359 Cr for NER SLDCs
- Proposed to be implemented by POWERGRID with **Debt Equity ratio of 70:30**
- **Implementation schedule 36 months from the date of LOA.**

PREVIOUS DELIBERATIONS FOR INCEPTION OF URTDSM PHASE-II:

- 10th NPC decided to form a Sub-Committee under Chairmanship of WRPC
- Sub-Committee deliberated on Uniform Philosophy of PMU locations, New Analytics and Requirement of upgradation of Control Center of URTDSM etc.,
- Sub-Committee report was discussed in 12th NPC and subsequently it was approved in 13th NPC meeting held on 05.07.2023.
- POWERGRID was entrusted to prepare DPR for URTDSM Phase-II project in 13th NPC meeting.
- DPR with an estimate of Rs 3922 Cr (pan India) was submitted to NPC/CEA on 11.03.2024.
- In 14th NPC meeting held in Bengaluru on 03.02.2024, it was suggested to optimize the cost.

PREVIOUS DELIBERATIONS ON URTDSM PHASE-II:



- Options for cost optimizing discussed with Grid-India and were put up to NPC/CEA.
- Finalization of new Analytics for URTDSM phase 2 are under discussion with GRID-India
- NPC vide Email dated 18.04.2024, informed that the PSDF funding for URTDSM Phase 2 project will not be available
- **Alternate funding to be explored for the URTDSM phase 2 by POWERGRID.**
- Grid-India informed that cost of URTDSM Phase-II upgrade for NLDC/RLDCs portion will be borne through fees and charges mechanism.
- Hence, funding option for SLDCs portion of Phase-II is proposed herewith.
- **73rd NRPC has given technical approval, To be discussed in other RPCs**

POWERGRID'S VIEW POINT:

- The URTDSM phase-1 Control centers are completing Operational life and becoming technically obsolete
- The URTDSM phase 2 includes installation of PMUs as per Sub-committee report.
- Increased penetration of Renewable energy requires increased monitoring to ensure reliable grid operations. It requires deployment of more PMUs.
- WAMS URTDSM Control centers are being replaced to be kept functional and accommodate new PMUs.
- Implementation period will be around 36months after approvals.
- **URTDSM Phase-II project to be implemented on priority.**

DELIBERATION BY MEMBERS

- **Concurrence for implementation of URTDSM phase-2 project already agreed technically in 73rd NRPC.**
- **Discussed in 50th Communication meeting at SRPC on 23.09.2024**
- **To be deliberated in other 4 RPCs**
- **Concurrence for RTM mode funding by POWERGRID**
- **Proposal to be concurred in ERPC**

DPR COST ANALYSIS

1. Control Centre infrastructure (34 LDCs) – Rs. 2389.95 Crores (full-fledged CC upgrade excluding analytics) (**per CC Rs.70.29 Cr** approx.)
2. Supply and integration of New PMUs (4000 no.s) – Rs. 1418.92 Crores (including 7 years AMC of new PMUs) (**per PMU Rs. 35.47** Lakhs approx.)
3. Integration of existing PMUs – Rs. 45.33 Crores (for approx. 2000 PMUs) (integration cost per each existing PMU Rs. 2.28 Lakhs approx.)
4. Analytic applications – Rs. 67.85 Crores (only software supply and installation at all 34 control centres)

The above cost breakup is based on the budgetary quote given by GE for URTDSM Phase-II project. However, balance of cost among various items and the actual cost (particularly for analytics applications) may vary from this budgetary cost and will be known after opening of tender only.

TYPICAL PMU DATA USES

1. Event Visualization using trends
2. Oscillation monitoring
3. Angular separation /stress monitoring of the Grid
4. Synchronization and Islanding
5. Voltage Stability
6. LSE

TYPICAL WAMS APPLICATIONS

- **Situational awareness**
 - Frequency, Voltage, Power flows, Angle Differences, Oscillation Detection
- Phase Angle and Grid Stress Monitoring
- Frequency Event Detection
- Islanding Detection
- Voltage and Angle Sensitivity Monitoring
- Frequency & Voltage Stability Monitoring
- Linear State Estimator
- Power Plant Model Validation
- Frequency Response Analysis
- Oscillation Event Analysis

TYPICAL BENEFITS

- Reduction in **major outages**
- Faster **line reclosing/restoration**
- Smoother **generator synchronization**
- Faster **black start** restoration and synchronization
- Fewer **customers affected** by outages
- Fewer **equipment failures** and catastrophic emergencies
- Faster **forensic event analysis** and **validation** of protection systems
- Back-up system for situational awareness - loss of SCADA system

URTDSM PHASE-II DPR COST OPTIMIZATION - OPTIONS

The following three options are possible for optimization of the DPR cost estimate of URTDSM phase-II project as per deliberation with Grid-India:

S No	Options	Brief Scope	Approximate DPR Cost incl. AMC	DPR Cost without the cost of NLDCs & RLDCs
1	Option-I	Upgradation of 34 Control centers with full system sizing and infrastructure and approx. 3000 No's new PMUs at only existing locations as per the PMU placement philosophy of Sub-committee report	Rs.3622 Cr	Rs. 2995 Cr
2	Option-II	Upgradation of 34 Control centers with full system sizing and infrastructure and without new PMUs.	Rs.2463 Cr	Rs.1836 Cr
3	Option-III	Implementation of approx. 3000 No's new PMUs at only existing locations as per the PMU placement philosophy of Sub-committee report	Rs.1159 Cr	

PMU PLACEMENT PHILOSOPHY IN PHASE-I

As per the Recommendation from renowned International and National Experts from NIST and IIT Kanpur under the Chair of Dr. Arun G Phadke, the following philosophy had been adopted for PMU placement in URTDSM Phase-I Project:

- All 400 kV stations in State and ISTS grids
- All generating stations at 220 kV and above
- HVDC terminals and inter-regional and inter-national tie lines
- Both ends of 400kV and above transmission lines at State and ISTS sector

URTDSM PHASE-II – PMU PLACEMENT CRITERIA:

- At one end of all 400 kV and above transmission lines
- At the HV side of all ICTs connected to 220 kV and above
- On HV side of coupling transformer of SVC/STATCOM for measurement of HV Bus voltage and current of coupling transformer
- At one end of line wherever FSC/ TCSC are installed.
- On HV side of converter transformers for measuring HVAC bus voltage and current of converter transformer on each converter station.
- On both ends of Inter-regional and trans-national tie lines and on boundary buses for such lines.
- At all ICTs, Bus reactors, Switchable line reactors of critical substations.

URTDSM PHASE-II – PMU PLACEMENT CRITERIA:

- At the Generating Transformers (GTs) at LV side (having HV side of 220kV and above) of the Generating units with capacity above 200 MW for Thermal units, 50 MW for Hydro units and 100 MW for Gas units.
- On all 220kV substations for measuring voltage of 220 kV bus and current of two lines/transformer catering to load centers.
- All 132 kV and above ISTS lines in NER & Sikkim and important load centers.
- At RE developer end of the evacuating line connecting the Renewable Energy Pooling Stations (PS) to point of interconnection with the grid of 50MW and above.
- Islanding, Separating & Restoration Points- At one end of line which is connected to black start stations along with circuit breaker status via synchro phasors.

URTDSM Phase-I LOA Detail

➤ **LOA: 15.01.2014 to M/s Alstom**

Completion Schedule: -24 Months (Jan 2016)

Scope:- Installation of PDCs at 34 Control Centres

Installation of 1186 PMUs across 351 Substations

➤ **Package-I: (NR, ER, NER, NTAMC & NLDC)**

Supply: - Rs. 158.22 Crore; Services: - Rs.72.82Crore

Total: - Rs. 231.04 Cr

➤ **Package-II: (SR, WR)**

Supply: - Rs. 82.61 Crore Services: - Rs.43.75Crore

Total: - Rs. 126.36 Cr → *WR Portion Executed cost: Rs. 70.80 Crores*

URTDSM PHASE-I PROJECT IMPLEMENTATION METHODOLOGY

- URTDSM Project awarded as two packages
- Package-1 comprising NR, ER and NER regions and Package-2 SR and WR Regions.
- NR-1 was identified as Lead Region for Pkg-1 and SR1 for Pkg-2

PMU PLACEMENT PHILOSOPHY

Adopted for Phase-I	Proposed for Phase-II
<ul style="list-style-type: none">• All 400 kV stations in State and ISTS grids• All generating stations at 220 kV and above• HVDC terminals and inter-regional and inter-national tie lines• Both ends of 400kV and above transmission lines at State and ISTS sector	<ul style="list-style-type: none">• At one end of all 400 kV and above transmission lines• At the HV side of all ICTs connected to 220 kV and above• On HV side of coupling transformer of SVC/STATCOM for measurement of HV Bus voltage and current of coupling transformer• At one end of line wherever FSC/ TCSC are installed.• On HV side of converter transformers for measuring HVAC bus voltage and current of converter transformer on each converter station.

PMU PLACEMENT PHILOSOPHY

Adopted for Phase-I	Proposed for Phase-II
	<ul style="list-style-type: none">• On both ends of Inter-regional and trans-national tie lines and on boundary buses for such lines.• At all ICTs, Bus reactors, Switchable line reactors of critical substations.• At the Generating Transformers (GTs) at LV side (having HV side of 220kV and above) of the Generating units with capacity above 200 MW for Thermal units, 50 MW for Hydro units and 100 MW for Gas units.• On all 220kV substations for measuring voltage of 220 kV bus and current of two lines/transformer catering to load centers.

PMU PLACEMENT PHILOSOPHY

Adopted for Phase-I	Proposed for Phase-II
	<ul style="list-style-type: none"><li data-bbox="1166 275 2298 401">• All 132 kV and above ISTS lines in NER & Sikkim and important load centers.<li data-bbox="1166 446 2298 658">• At RE developer end of the evacuating line connecting the Renewable Energy Pooling Stations (PS) to point of interconnection with the grid of 50MW and above.<li data-bbox="1166 704 2298 915">• Islanding, Separating & Restoration Points- At one end of line which is connected to black start stations along with circuit breaker status via synchro phasors.



Thank You

ANNEXURE B.2.13

APPROVED MAINTENANCE SCHEDULE OF THERMAL GENERATING UNITS

SYSTEM	STATION	UNIT NO.	CAPACITY(MW)	PERIOD (AS PER LGBR 2024-25)		NO OF DAYS	REASON	APPROVED PERIOD		NO OF DAYS	WHETHER AS PER LGBR OR NOT	REMARKS
				FROM	TO			FROM	TO			
DVC	DSTPS	1	500	15-10-2024	18-11-2024	35	COH-Boiler RLA, turbogen., De-Nox &FGD	-	-	-	NO	NOT AVAILING
	Mejia TPS	3	210	01.07.2024	25.12.2024	178	Generator replacement and ESP upgradation	20.10.2024	04.12.2024	45	NO	APPROVED
IPP	MPL	2	525	01-10-2024	14-11-2024	45	COH	12.11.2024	27.12.2024	45	NO	APPROVED
	GMR	3	350	11.09.2024	30.09.2024	20	BOH	05.10.2024	30.10.2024	25	NO	APPROVED
	Adhunik TPS	1	270	15-10-2024	13-11-2024	30	Annual Maintenance	-	-	-	NO	Already availed in Sep'2024
CESC	Southern TPS	2	67.5	13-10-2024	27-10-2024	15	PG Test/ Boiler License Renewal	13-10-2024	27-10-2024	15	YES	APPROVED

Annex- B.2.15



भारत सरकार/ Government of India
विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

प्रचालन निष्पादन प्रबोधन प्रभाग / Operation Performance Monitoring Division

File No. 15/2/CEA/GO&D/OPM/ 266-268

Dated: 10/09/2024

To,

Shri Pradyuman Prasad Sah,
Chief General Manager & Project Head,
Mejia Thermal Power Station,
Durlavpur, P.O. MTPS, Bankura, West Bengal-722 183.

विषय: Online submission of Daily Generation Details over NPP Portal – के संबंध में।

Sir/Ma'am,

Under the relevant provision of The Electricity Act, 2003, Central Electricity Authority is entrusted with the responsibility to collect and record the data concerning the generation of power and publish various reports like Daily Generation Report, Monthly Generation Report, Thermal Performance Review etc. All these reports are prepared based on the information furnished by various generating stations/ utilities on a daily, monthly, and yearly basis in a time bound manner.

2. In this connection, your attention is invited to Section 74 of The Electricity Act 2003 and CEA (Furnishing of Statistics, Returns, and Information) Regulations, 2007, which stipulate that it shall be the duty of every licensee, generating company or person generating electricity for its or his own use; to furnish to Authority such statistics, returns or other information relating to the generation, transmission, distribution, trading, and use of electricity as it may require and at such times and in such form and manner as may be specified by the Authority.

3. **Daily Generation data is required to be submitted online over the National Power Portal, which is not initiated by your organisation as per our records. It is, therefore, requested to submit the Daily Generation Data online over the NPP portal regularly on daily basis.**

(Note: User ID & passwords for National Power portal has already been issued to all users. In case details are not available or any other issue regarding NPP, a request for the same with the Name of Nodal officer, email id and mobile no. may be sent to NIC on email id npp.support@gov.in with information to OPM Division on email id dgrceaopm@gmail.com.)

Regards,

(अरुण कुमार / Arun Kumar)

निदेशक/ Director

प्रचालन निष्पादन प्रबोधन प्रभाग / OPM Division

Copy to:

1. Member Secretary (ERPC)
2. SA to Member (GO&D), CEA

20/9
3/2(0)



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

प्रचालन निष्पादन प्रबोधन प्रभाग / Operation Performance Monitoring Division

File No. 15/2/CEA/GO&D/OPM/ 269-271

Dated: 10/09/2024

To,

The Chief Engineer,
State Load Despatch Centre,
Howrah, West Bengal-711 109.

विषय: Online submission of Daily Generation Details over NPP Portal – के संबंध में।

Sir/Ma'am,

Under the relevant provision of The Electricity Act, 2003, Central Electricity Authority is entrusted with the responsibility to collect and record the data concerning the generation of power and publish various reports like Daily Generation Report, Monthly Generation Report, Thermal Performance Review etc. All these reports are prepared based on the information furnished by various generating stations/ utilities on a daily, monthly, and yearly basis in a time bound manner.

2. In this connection, your attention is invited to Section 74 of The Electricity Act 2003 and CEA (Furnishing of Statistics, Returns, and Information) Regulations, 2007, which stipulate that it shall be the duty of every licensee, generating company or person generating electricity for its or his own use; to furnish to Authority such statistics, returns or other information relating to the generation, transmission, distribution, trading, and use of electricity as it may require and at such times and in such form and manner as may be specified by the Authority.

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Regards,


(अरुण कुमार / Arun Kumar)

निदेशक/ Director

प्रचालन निष्पादन प्रबोधन प्रभाग / OPM Division

Copy to:

1. Member Secretary (ERPC)
2. SA to Member (GO&D), CEA

Annexure D.1

Updated Anticipated Peak Demand (in MW) of ER & its constituents for October 2024

1	BIHAR	Demand (MW)	Energy Requirement (MU)
	NET MAX DEMAND	7097	3801
	NET POWER AVAILABILITY- Own Sources	429	340
	Central Sector+Bi-Lateral	6690	4771
	SURPLUS(+)/DEFICIT(-)	22	1310
2	JHARKHAND		
	NET MAXIMUM DEMAND	2015	1167
	NET POWER AVAILABILITY- Own Source	385	210
	Central Sector+Bi-Lateral+IPP	1362	865
	SURPLUS(+)/DEFICIT(-)	-268	-92
3	DVC		
	NET MAXIMUM DEMAND	3350	2195
	NET POWER AVAILABILITY- Own Source	5550	4129
	Central Sector+MPL	300	223
	Bi- lateral export by DVC	2450	1586
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	50	571
4	ODISHA		
	NET MAXIMUM DEMAND (OWN)	5600	3497
	NET MAXIMUM DEMAND (In Case of CPP Drawal of 900 MW(peak) and average drawl of 700 MW)	6500	4836
	NET POWER AVAILABILITY- Own Source	3639	2428
	Central Sector	1959	1062
	SURPLUS(+)/DEFICIT(-) (OWN)	-2	-7
	SURPLUS(+)/DEFICIT(-) (In Case of CPP Drawal of 950 MW(peak) and average drawlm of 700 MW)	-902	-1346
5	WEST BENGAL		
	WBSEDCL		
5.1	NET MAXIMUM DEMAND	8175	4853
	NET MAXIMUM DEMAND (Incl. Sikkim)	8180	4857
	NET POWER AVAILABILITY- Own Source (Incl. DPL)	5471	3348
	Central Sector+Bi-lateral+IPP&CPP+TLDP	2654	1839
	EXPORT (To SIKKIM)	5	4
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	-55	330
5.2	CESC		
	NET MAXIMUM DEMAND	2050	994
	NET POWER AVAILABILITY- Own Source	710	516
	IMPORT FROM HEL	460	353
	TOTAL AVAILABILITY OF CESC	1170	869
	SURPLUS(+)/DEFICIT(-)	-694	-125
		-880	-125
	WEST BENGAL (WBSEDCL+CESC+IPCL) (excluding DVC's supply to WBSEDCL's command area)		
	NET MAXIMUM DEMAND	10225	5847
	NET POWER AVAILABILITY- Own Source	6236	3864
	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	3195	2192
	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXPORT	-744	209
	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXPORT	-749	205
6	SIKKIM		
	NET MAXIMUM DEMAND	104	51
	NET POWER AVAILABILITY- Own Source	378	239
	Central Sector	197	135
	SURPLUS(+)/DEFICIT(-)	471	323
	EASTERN REGION		
	NET MAXIMUM DEMAND	28391	15564
	NET MAXIMUM DEMAND (In Case of CPP Drawal of 900 MW(peak) and average drawl of 700 MW)	29291	16903
	BILATERAL EXPORT BY DVC (Incl. Bangladesh)	2131	1586
	EXPORT BY WBSEDCL TO SIKKIM	5	4
	EXPORT TO B'DESH & NEPAL OTHER THAN DVC	642	478
	NET TOTAL POWER AVAILABILITY OF ER (INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)	29423	19368
	SURPLUS(+)/DEFICIT(-)	-1745	1736
	SURPLUS(+)/DEFICIT(-) (In Case of CPP Drawal for Odisha)	-2645	397