



भारत सरकार Government of India

विद्युत मंत्रालय Ministry of Power

उत्तर पूर्वी क्षेत्रीय विद्युत समिति

North Eastern Regional Power Committee

एन ई आर पी सी कॉम्प्लेक्स, डोंग पारमाओ, लापालाङ, शिल्लोंग-७९३००६, मेघालय
NERPC Complex, Dong Parmaw, Lapalang, Shillong - 793006, Meghalaya

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No. NERPC/SE (O)/OCC/2020/ **3052-3089**

Dated: 06th February, 2020

To,

1. Managing Director, AEGCL, Bijuli Bhawan, Guwahati – 781 001
2. Managing Director, APDCL, Bijuli Bhawan, Guwahati – 781 001
3. Managing Director, APGCL, Bijuli Bhawan, Guwahati – 781 001
4. Director (Generation), Me. PGCL, Lumjingshai, Short Round Road, Shillong – 793 001
5. Director (Distribution), Me. ECL, Lumjingshai, Short Round Road, Shillong – 793 001
6. Director(Transmission), Me. PTCL, Lumjingshai, Short Round Road, Shillong – 793 001
7. Managing Director, MSPDCL, Secure Office Bldg. Complex, South Block, Imphal – 795 001
8. Managing Director, MSPCL, Electricity Complex, Keishampat, Imphal – 795 001
9. Director (Tech.), TSECL, Banamalipur, Agartala -799 001.
10. Director (Generation), TPGCL, Banamalipur, Agartala -799 001.
11. Chief Engineer (WE Zone),Department of Power ,Govt. of Arunachal Pradesh, Itanagar- 791111
12. Chief Engineer (EE Zone),Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791111
13. Chief Engineer (TP&MZ),Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791111
14. Engineer-in-Chief (P&E), Department of Power, Govt. of Mizoram, Aizawl – 796 001
15. Chief Engineer (P), Department of Power, Govt. of Nagaland, Kohima – 797 001
16. CGM, (LDC), SLDC Complex, AEGCL, Kahilipara, Guwahati-781 019
17. Group General Manager, NTPC, Bongaigoan Thermal Power Project, P.O. Salakati, Kokrajhar- 783369
18. ED, NERTS, PGCIL, Dongtieh-Lower Nongrah, Lapalang, Shillong -793 006
19. ED (O&M), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
20. ED (Commercial), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
21. ED (O&M), NHPC, NHPC Office Complex, Sector-33, Faridabad,Haryana-121003
22. Vice President (Plant), OTPC, Badarghat Complex, Agartala, Tripura - 799014
23. GM, NERLDC, Dongtieh, Lower Nongrah, Lapalang, Shillong -793 006
24. Member Secretary, ERPC, 14 Golf Club Road, Tollygunge, Kolkata-700033
25. Chief Engineer, GM Division, Central Electricity Authority, New Delhi – 110066
26. Chief Engineer (NPC), NRPC Complex, Katwaria Sarai, SJSS Marg., New Delhi - 110016

Sub: Minutes of 164th OCC Meeting.

Sir/Madam,

Please find enclosed herewith the minutes of 164th OCC Meeting held at “Hotel Landmark”, Guwahati on the **21st January, 2020** for your kind information and necessary action. The minute is also available on the website of NERPC, **www.nerpc.nic.in**.

Any comments/observations may kindly be communicated to NERPC Secretariat at the earliest.

Encl: As above

भवदीय / Yours faithfully,

B. Lyngkhoi
Director/ SE

Copy to:

1. CGM, AEGCL, Bijuli Bhavan, Guwahati - 781001
2. CGM, APGCL, Bijuli Bhavan, Guwahati - 781001
3. CGM, DISCOM, Bijuli Bhavan, Guwahati - 781001
4. Head of SLDC, Me.ECL, Lumjingshai, Short Round Road, Umjarain, Shillong – 793 022
5. Head of SLDC, Department of Power, Govt. of Arunachal Pradesh, Itanagar- 791 111
6. Head of SLDC, Department of Power, Dimapur, Nagaland
7. Head of SLDC, Electricity Department, Govt. of Manipur, Keishampat, Imphal – 795 001
8. Head of SLDC, Department of Power, Govt. of Mizoram, Aizawl – 796 001
9. Head of SLDC, TSECL, Agartala – 799 001
10. Chief Engineer(Elect), Loktak HEP, Vidyut Vihar, Kom Keirap, Manipur- 795124
11. Addl. GM (EED), NTPC Ltd., Bongaigoan Thermal Power Project, P.O. Salakati, Kokrajhar- 783369
12. DGM (C&M), OTPC, 6th Floor, A-Wing, IFCI Tower -61, Nehru Place, New Delhi – 110019.



Director/ SE

North Eastern Regional Power Committee

MINUTES OF THE 164th OPERATION COORDINATION

SUB-COMMITTEE MEETING OF NERPC

Date : 21/01/2020 (Tuesday)
Time : 10:00 hrs
Venue : “Hotel Landmark”, Guwahati.

The List of Participants in the 164th OCC Meeting is attached at **Annexure – I**

Shri A.K. Thakur, Member Secretary, NERPC welcomed the participants to the 164th OCC meeting. He thanked the members for participating in good numbers in the meeting. He expressed concerned about the delay in signing the TPA for ADMS by Assam & Tripura and requested them to complete the same immediately. He announced that PDMS project shall declare “Go Live” on 14.02.2020 and Hon’ble Chairman, NERPC & Power Minister, Govt. of Meghalaya will inaugurate it. He also mentioned about the objection of OTPC Management regarding the shutdown of 400kV Palatana – Silchar during the month of December, 2019 when forum had already agreed and stated that such thing should not repeat in future. He then requested Shri B. Lyngkhoi, Director(O&P), NERPC to take up the agenda items for discussion.

At the outset, Director, NERPC congratulated Sh. Dipech Ch. Das & Sh. Srijit Mukherjee on their promotion to DGM, AEGCL & Dy. Director, NERPC respectively and put in record their contribution in various fields for betterment of the forum. He wished them good luck in future.

A. CONFIRMATION OF MINUTES

**CONFIRMATION OF MINUTES OF 163rd MEETING OF OPERATION COORDINATION
SUB-COMMITTEE OF NERPC.**

The minutes of 163rd meeting of Operation Sub-committee held on 17th December, 2019 at Shillong were circulated vide letter No. NERPC/SE (O)/OCC/2019/2674-2711 dated 16th January, 2020.

The Sub-committee confirmed the minutes of 163rd OCCM of NERPC as no comments/observations received from the constituents.

ITEMS FOR DISCUSSION

B.1. ACTION TAKEN:

1. IMPLEMENTATION OF PROJECTS FUNDED FROM PSDF:

The status as informed in 164th OCC:

| State | R&U scheme | ADMS | Capacitor Installation | SAMAST** | Line Differential Protection |
|-------------|---|--|---------------------------|--|---|
| Ar. Pradesh | Package-I LoA issued. Materials expected to be received at site by Feb'20 P-II(for PLCC & communication) OBD done and LoA expected to be issued by Jan'20 P-III tender to be published by Jan'20. Station-wise status to be updated * | TPA signed and first tranche of funds received | - | Reply against TESG queries to be sent. | - |
| Nagaland | All completed except for PLCC package. Station-wise status to be updated. | TPA signed and first tranche of funds received | - | Reply against TESG queries to be sent. | Lines identified. Under DPR preparation stage. |
| Mizoram | Completed. | TPA signed | To reply to TESG queries. | To reply to TESG queries. | Lines identified for installation of DPR viz. 132kV Aizawl - Luangmual and 132kV Kawmzawl - Khawiva. |
| Manipur | Package-II: completed Package-I: WIP Status report to be submitted | TPA signed. | Approval awaited for NIT | To reply to TESG queries. | Lines identified. LDP for 132kV Imphal-Imphal and 132kV Jiribm-Jiribam |

| | | | | | |
|-----------|---|--|--|-------------------------------|--|
| | | | | | proposed. Under DPR preparation stage. |
| Tripura | All LOAs issued. Station-wise status to be updated * | Contract agreement signed. Draft TPA with Govt of Tripura. TPA & A/C opening by Nov'19 | Study to be carried out in consultation with NERLDC. | To reply to TESSG queries. | Lines not yet identified. To be taken up in Sub-group. |
| Assam | Balance LoA by Feb'20. Station-wise status to be submitted. | Contract Agreement signed. TPA by Feb'20. | - | Appraisal Committee approved. | Lines identified. Under DPR preparation stage. |
| Meghalaya | MePTCL Work completed MePGCL – Station-wise status to be updated. | First tranche of funds received. Requisition sent for second tranche. Work at SLDC & 2 stations completed. | - | Appraisal Committee approved. | LOA issued. First tranche of funds received. |

Deliberation of the sub-Committee:

M/s ORBIT presented the execution status of ADMS for NER and highlighted the following technical issues:-

- APIs to be provided; so that SMS alert facility can be incorporated. Cost to be borne by the supplier.
- SIM card to be bought by the state utilities.
- All the substations tested with GPRS
- Static IP with broadband connection is required. Acquired in case of Manipur and Nagaland.
- For Meghalaya the system has been tested for GPRS and FO, broadband also available.
- ICCP link for input data – completed for states except Assam, Mizoram (in Feb'20)
- Amendment to payment terms – 100% GST alongwith the 60% payment milestone

- Utilization of quantity variation clause – substations may be identified for the states which are slated for completion in Feb'20.

Further M/s ORBIT requested time extension for project execution particularly for Assam where materials not yet delivered.

The forum advised all the utilities to clear the bills immediately as per milestones above and avail the 60% from PSDF before March, 2020.

The forum also decided as below:

- For the first tranche of funds, requisition for 30% of the contract amount (without tax) is to be sent by the respective SLDC. After receipt, the same is to be disbursed without tax.
- For the second tranche of funds requisition for 60% of the contract amount + GST on the entire contract value is to be sent by the respective SLDC. After receipt same is to be disbursed with tax/GST.

The Sub-Committee noted as above.

Action: All state utilities/NERPC.

2. Long Outage of Important Grid Elements:

| Name of the Element | Name of Utility | Status as informed in 163 rd OCC | Latest status |
|---|-----------------|--|---|
| 63MVAR Reactor at Byrnihat to replace with 80MVAR Reactor | MePTCL | Agreed by NLDC/NPC | Sanction order awaited. |
| 132kV Dimapur - Imphal (out since 25.07.18) | NERTS | Land survey for relocation of 2 Towers completed by NERTS. Latest survey report to be shared by NERTS. | Present status Foundation: 22/34 Erection : 22/34 Stringing:3.536/14Km |
| 220kV Sonabil-Samaguri-I | AEGCL | OBD on 26.12.2019. | Jul'2020 |
| 132kV Panchgram(out since 14.01.2019) Srikona-since | AEGCL | Pile foundation may be required. LOI for soil testing soon. | Soil testing by NIT Silchar. Line if re-routed then rivers can be avoided and route shortened. Restoration may be delayed by 9 months due to rerouting. |

| | | | |
|--|-------|-----------|--|
| 63MVAR L/R for 400kV Palatana-Silchar Ckt-I (out since Apr'19) | OTPC | By Dec'19 | Technical difficulty. Extension required. Filter machine not able to work due to humid conditions. 15.02.20 target |
| OTPC Module-I (out since 07.10.2019) | OTPC | - | Rotor reached GE facility. 45 days for maintenance , 15min days fixing. 31.03.2020. |
| 50 MVAR L/R at Misa of 220 kV Misa – Mariani | NERTS | - | Jan' 2020 |

Deliberation of the Sub-Committee:

NERLDC intimated RIO clearance for 132 kV Imphal – Kohima will lapse on 31.01.2020, NERTS to again apply.

The Sub-Committee noted as above.

Action: MePTCL, NERTS, AEGCL, OTPC.

3. Follow up of recommendations of PCC/Sub-group:

| SN | Name of element | Actions to be taken | Concerned Utilities | Status as informed in the 163 rd OCC Meeting | Latest status |
|----|-------------------------------|---|---------------------|--|--|
| 1 | 132 kV AGTCCPP - Agartala D/C | Installation of Line Differential in 132 kV AGTCCPP - 79 Tilla D/C & Review of impedance setting of both ends as a temporary measure. | NERTS/ NEEPCO | LDR: Technical evaluation completed. Under commercial evaluation stage. Award by Dec, 2019 <u>Impedance Measurement</u> : To be completed by 31.12.19 | Commercial evaluation done. Award to be placed on M/s GE T&D by 31.01.20 |
| 2 | 132kV AGTCCPP- Kumarghat | GPS to be procured and time synchronization of relay to be done | NEEPCO | Dec'19 | Completed. 2 nos STG NR not synchronized due to non-availability of ports. |
| 3 | 132kV P.K. Bari- Kumarghat | Installation of Line differential relay | NERTS | Technical evaluation completed. Under commercial evaluation stage. Award by Dec, 2019 | Commercial evaluation done. Award to be placed on M/s GE T&D by 31.01.20 |

The Sub-Committee noted as above.

Action: NEEPCO, NERTS.

4. Furnishing of various data for reliable operation of grid:

| SN | Data reg. | Target deadline | Status as informed in the 163 rd OCC Meeting | Status as informed in the 164 th OCC Meeting |
|----|---|----------------------------------|--|---|
| 1 | Furnishing Technical and Commercial data for computation of PoC Charges and Losses for January to March'20 (Q4 of 2019-20) | 15.10.19 | Manipur, Assam, Meghalaya, Mizoram and Nagaland submitted. Rest 2 states to be submitted. Tripura by Nov,2019, Ar. Pradesh- by Nov'19 end, NHPC & NEEPCO to submit | Manipur, Mizoram, Nagaland & NEEPCO submitted |
| 2 | Furnishing details regarding GT Tap Positions of ISGS and other generators. Required for studies related to reactive power capability testing | 15.10.19 | Pare not submitted. Data from State Generators also required | Received all the ISGS. State generators are required. |
| 3 | Furnishing Nodewise half hourly data monthly Required for studies pertaining to Real Time Market | By 10 th of the month | Received from Arunachal, Manipur, Mizoram. TSECL will submit by Nov'19. Assam, Meghalaya and Nagaland to submit from next month. | From 01.04.20 the RTM would be introduced. Meghalaya to submit to SO-II |

The Sub-Committee noted as above.

Action: All utilities as above.

B.2. OPERATIONAL PERFORMANCE AND GRID DISCIPLINE DURING DECEMBER, 2019

As per the data made available by NERLDC, the grid performance parameters for December, 2019 are given below:

NER PERFORMANCE DURING DECEMBER, 2019

| States | Energy Met (MU) | | w.r.t. Nov,19 % inc (+) /dec (-) | Energy Reqr. (MU) | | w.r.t. Nov,19 % inc (+) /dec (-) | % surplus (+) /shortfall (-) of energy In Dec,19 |
|-------------|-----------------|--------|----------------------------------|-------------------|--------|----------------------------------|--|
| | Dec-19 | Nov-19 | | Dec-19 | Nov-19 | | |
| Ar. Pradesh | 65.69 | 56.07 | 17.16 | 65.98 | 56.43 | 16.92 | -0.44 |
| Assam | 653.7 | 699.61 | -6.56 | 663.14 | 719.77 | -7.87 | -1.42 |
| Manipur | 79.02 | 73.45 | 7.58 | 79.48 | 73.96 | 7.46 | -0.58 |
| Meghalaya | 184.93 | 175.87 | 5.15 | 188.25 | 175.87 | 7.04 | -1.76 |

| | | | | | | | |
|---------------|----------------|----------------|--------------|----------------|----------------|--------------|--------------|
| Mizoram | 64.6 | 63.71 | 1.40 | 64.89 | 64.07 | 1.28 | -0.45 |
| Nagaland | 66.84 | 64.62 | 3.44 | 67.15 | 65.04 | 3.24 | -0.46 |
| Tripura | 104 | 108.96 | -4.55 | 104 | 108.98 | -4.57 | 0.00 |
| Region | 1218.78 | 1242.29 | -1.89 | 1232.89 | 1264.12 | -2.47 | -1.14 |

| States | Demand Met (MW) | | w.r.t. Nov,19 % inc (+) /dec (-) | Demand in (MW) | | w.r.t. Nov,19 % inc (+) /dec (-) | % surplus (+) /shortfall (-) of demand In Dec,19 |
|---------------|-----------------|-------------|----------------------------------|----------------|-------------|----------------------------------|--|
| | Dec-19 | Nov-19 | | Dec-19 | Nov-19 | | |
| Ar. Pradesh | 139 | 146 | -4.79 | 139 | 146 | -4.79 | 0.00 |
| Assam | 1380 | 1508 | -8.49 | 1380 | 1508 | -8.49 | 0.00 |
| Manipur | 216 | 201 | 7.46 | 216 | 224 | -3.57 | 0.00 |
| Meghalaya | 365 | 350 | 4.29 | 365 | 364 | 0.27 | 0.00 |
| Mizoram | 125 | 107 | 16.82 | 126 | 107 | 17.76 | -0.79 |
| Nagaland | 153 | 148 | 3.38 | 167 | 150 | 11.33 | -8.38 |
| Tripura | 224 | 257 | -12.84 | 224 | 257 | -12.84 | 0.00 |
| Region | 2530 | 2639 | -4.13 | 2544 | 2714 | -6.26 | -0.55 |

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

AVERAGE FREQUENCY (Hz)

| Month----> | Dec-19 | Nov-19 |
|---|---------------|---------------|
| Total Generation in NER (Gross) | 1447.282 | 1400.490 |
| Total Central Sector Generation (Gross) | 1078.343 | 1001.845 |
| Total State Sector Generation (Gross) | 368.939 | 398.645 |
| Inter-Regional Energy Exchange | | |
| (a) NER-ER | 271.34 | 212.61 |
| (b) ER-NER | 2.44 | 40.71 |
| (c)NER-NR | 0 | 37.18 |
| (d)NR-NER | 299.59 | 183.50 |
| © Net Import | 30.69 | -25.58 |

| Month----> | Dec-19 | Nov-19 |
|--------------------------|-----------|-----------|
| | % of Time | % of Time |
| Below 49.9 Hz | 6.48 | 4.07 |
| Between 49.9 to 50.05 Hz | 71.67 | 73.62 |
| Above 50.05 Hz | 21.85 | 22.26 |
| Average | 50.00 | 50.01 |
| Maximum | 50.34 | 50.27 |
| Minimum | 49.65 | 49.65 |

Deliberation of the sub-Committee:

NERLDC highlighted the following points in their presentation:

1. Max/Min Demand met in the Month : 2538 MW/2226 MW
2. Max/Min Energy met in the Month : 42.15 MU/36.67 MU
3. Frequency Profile: Within IEGC band : 72 %
4. Voltage issue: Max voltage at 400 kV RHEP – 430 kV. Voltage above 420 kV at 400 kV RHEP-25% of time
5. 63MVAR L/R for 400kV Palatana-Silchar Ckt-I – Out since Apr'19
6. Network Issues: GD – 09 no. of times & GI-16 no. of times

7. 3 no. of times GD has occurred at Ningthoukhong area of Manipur due to tripping of 132 kV Loktak – Ningthoukhong line 4 no. of times in the month.

8. Tripping of important lines: 400 kV Bongaigaon - Byrnihat – 1 no. of times;

NERLDC intimated that GD at Ningthoukhong and down stream areas has occurred 4 times since 1st January, 2020 which also affected the international connectivity of 11kV Moreh-Tamu. Detailed discussion to be conducted in PCC. Trial operation of DAVR – RLDC would be invited

The Sub-Committee noted as above.

C. ITEMS- STATUS REVIEW

1. Status of Generating Units, Transmission Lines in NER:

During 164th OCC meeting, the status as informed by different beneficiaries is as follows:

| SN | Items | Status as given in 162 nd OCC Meeting | | Status as given in 164 th OCC Meeting | |
|------------------------|--|---|----------------------------|---|---------------------------------|
| | | Timeline for completion | Timeline for completion | Timeline for completion | Furnishing of detail parameters |
| a. New elements | | | | | |
| 1 | 400/220kV, 315 MVA ICT-1 of NTPC at Bongaigaon | Jan'20 | Already submitted | Jan'20 | Already submitted |
| 2 | Kameng HEP of NEEPCO two units (2 x 150 MW) Next two units (2x150 MW) | Dec'19 | CEA clearance available | Jan'20 | CEA clearance available |
| 3 | 220/132 kV, 1x160 MVA ICT with GIS Bay at Kopili | Test charging shall be delayed due to damage to the Power House and Switchyard after failure of Penstock at Kopili. | To be submitted to NERLDC. | Test charging shall be delayed due to damage to the Power House and Switchyard after failure of Penstock at Kopili. | To be submitted to NERLDC. |
| 4 | Dedicated 33kV feeder at Khliehriat Substation from Lumshnong. | Date to be finalized. | Not applicable. | Date to be finalized. | Not applicable. |
| 5 | 220kV Balipara-Sonabil-2 | Dec'19 | To be submitted to NERLDC. | Jan'20 | To be submitted to NERLDC. |

| | | | | | |
|--|---|---|----------------------------|--|----------------------------|
| 6 | Bay at Agia S/S for 132kV Agia-Nangalbibra Ckt #II by AEGCL | ERL panel supplier expect to deliver in 15 days. By Dec'19 | To be submitted to NERLDC. | By Jan'20 | To be submitted to NERLDC. |
| 7 | 80MVAR B/R at RHEP by NEEPCO | Discussed in 2nd NERSCT | To be submitted to NERLDC. | Price validation of old offers being done. Tender by May'20 | To be submitted to NERLDC. |
| b. Elements under breakdown/upgradation | | | | | |
| 8 | Up-gradation of 132 kV Lumshnong-Panchgram line | TESG queries submitted | Not applicable. | TESG queries submitted | Not applicable. |
| 9 | PLCC Panels at Loktak end of Loktak - Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder | Nov'19. NERPC to write to MD, MSPCL for expediency. | Not applicable. | Jan'20 | Not applicable. |
| 10 | Upgradation of 132 kV Bus Bar at Umiam Stg- III to ACSR Zebra | DPR submitted. Other upgradation works to be included in DPR | Not applicable | DPR submitted. Other upgradation works to be included in DPR | Not applicable |
| 11 | Upgradation of 132kV Karong-Kohima (till Mao) by MSPCL | It was decided that MSPCL would upgrade the entire line. DoP Nagaland to take up with MSPCL for entire upgradation by MSPCL. Loc.No. 189 to 228 i.e., 9km stringing left. Shutdown applied for. | - | By Feb'20 | To be submitted to NERLDC. |
| 12 | Installation of LDP for 132kV AGTCCPP-Agartala D/C & 132kV PKBari-Kumarghat by NERTS | Technical evaluation completed. Under commercial evaluation stage. Award by Dec 2019 | - | Commercial evaluation done. Award to be placed on M/s GE T&D by 31.01.20 | - |

| | | | | | |
|----|--|--|---|---|---|
| 13 | Procurement of GPS at AGTCCPP & time synchronization for 132kV AGTCCPP-Kumarghat by NEEPCO | Dec'19 | - | Jan'20 | - |
| 14 | Diversion of 132kV Bawktlang-Sihhmui | Technical Evaluation completed. Award by 20 th Nov 2019. Work completion: 28 th Feb 2020 | - | Awarded on M/s DTE Const. Survey done. Work can be started subject to providing of stubs by P&ED Mizoram. | - |

The Sub-Committee noted as above.

Action: All utilities as above.

C.2. Update on Real Time Energy Assessment for Effective Grid Management:

Data availability as updated in the 162nd OCCM is given below:

| Name of the state /utility | Data Availability (in%) | Issues | Status as updated in the 162 nd OCCM |
|----------------------------|------------------------------------|--|---|
| DoP Ar. Pradesh | Not updated | - | Same problems persisting. CDAC to visit critical locations immediately. |
| Assam | 62% | - | |
| Manipur | 80% | (i)Frequent hang of TARA device, resumes reporting upon reboot. (ii) Yurembam end of 132kv of Imphal(PG)-2 fdr, corresponding to SEM NP-8374-A not reporting. (iii) Jiribam 132/133kv ICT(manipur consumption), corresponding to SEM NP-8501-A not reporting | |
| Meghalaya | 0% detailed report to be submitted | After TARA devices are connected the SEMs they hang. | |
| Mizoram | 50% | Luangmual end of 132kV Aizawl(PG) not reporting; Kolasib end of 132kV Badarpur(PG) not reporting | |

| | | |
|----------|--------|---|
| Nagaland | 37.5% | Non-reporting: (i)Kohima end of 132kV Dimapur(PG)-2 (ii)Sanis end of 132kV DHEP (iii)Mokokchung end of Mokokchung(PG)-1 (iv) Mokokchung end of Mokokchung(PG)-2 (v) Mokokchung end of DHEP FDR |
| Tripura | 12.5%. | Network available 24x7. Device fault suspected. |

Deliberation of the sub-Committee:

The item could not be discussed due to absence of representative from CDAC.

The Sub-Committee noted as above.

Action: CDAC/All SLDCs/NERPC

C.3. Ensuring proper functioning of Under Frequency Relays(UFR) & df/dt Relays:

In 7th NPC meeting held on 08.09.17 it was agreed that mock test is good enough to test the healthiness of the UFR & df/dt relays. The frequency of site inspection was proposed to be upto six months. RPC may carry out periodic inspection, in line with provisions of IEGC and furnish inspection reports to NPC.

Deliberations in the previous meetings:-

- Status of recommendations subsequent to UFR Inspection:

TSECL

| UFR location, No. feeders | Recommendation | Status |
|--|--|--------|
| 132/33kV Surjamaninagar, 1no 33kV feeder | Relay to be replaced. | |
| 132/33kV 79Tilla, 4nos 33kV feeders | Relay operation to be instantaneous with no time delay. To be taken up with OEM | |
| 66/33/11kV Badarghat, 2nos 33kV feeders | Relay operation to be instantaneous with no time delay. To be taken up with OEM | |
| 132/66/33/11kV Rabindranagar, 1nos 33kV feeder | Relay operation to be instantaneous with no time delay. To be taken up with OEM | |

DoP Nagaland

| UFR location, No. feeders | Recommendation | Status |
|---------------------------------------|---------------------------|--------|
| 132/66/33kV Dimapur, 2nos 33kV feeder | Relays to be retrofitted. | |

Common recommendation for AEGCL, MePTCL, DoP Nagaland & TSECL - Separate records for UFR operation to be maintained at the respective Sub-station(s).

- UFR Inspection for Manipur in March'2020.

Deliberation of the sub-Committee:

After detailed deliberation, it was decided that UFR inspection for Mokokchung would be carried out by Feb'20.

The Sub-Committee noted as above.

Action: DoP Nagaland, TSECL, MeECL, AEGCL, NERPC.

C.4. Extended C Band VSAT for power system communications in NER:

In 156th OCCM CGM, NERLDC informed that KPTCL has committed to go ahead with the Pilot Project. The readiness for immediate execution of the same will be communicated.

MePTCL raised apprehensions regarding the possibility of Cyber Security breach at Killing as fallout of this pilot. NERLDC informed that the same has already been taken care of, which will be addressed by GM(SL), NERLDC. In 157th OCCM, CGM, NERLDC informed that the queries have already been addressed by NERLDC. He also informed that Cyber Security aspects are taken care by the firewall. MePTCL requested that the same may be intimated to EE, Killing.

In 158th OCC Meeting it was informed that EE, Killing, MePTCL would resolve the issues with ABB at the earliest.

The 159th OCC forum approved implementation of the pilot project upon resolution of the security concerns.

In 160th OCCM Director, NERPC once again requested NERLDC to obtain the approximate cost of the project so that the same may be approved by TCC/RPC.

In 161st OCCM NERLDC informed that quotation has been requested from the concerned agency and the cost would be informed in the next OCCM.

In 162nd OCCM NERLDC informed that the cost for the pilot project would be around Rs.6, 85,000/- (Rupees Six lakhs eighty five thousands only). The forum noted and recommended for TCC/RPC approval.

Deliberation of the sub-Committee:

NERLDC informed that Killing VSAT is not reporting at present.

The Sub-Committee noted as above.

Action: NERLDC/NERPC/MeECL.

C.5. DIMAPUR PG telemetry out since Feb'18.

In 161st OCCM NERTS informed that Work is in progress. Data already started reporting. Joint validation to be done by 15.11.19.

In 162nd OCCM NERTS informed that the Analog and Digital Data has started reporting. Additional new signals provided by RLDC being configured and validated. The same would be completed by 30.11.2019.

Deliberation of the sub-Committee:

NERTS informed that work has been completed and data validation with NERLDC done on 19.12.2019. **The forum decided to drop the agenda item.**

The Sub-Committee noted as above.

C.6 Update on PDMS:

As per deliberation in the previous meeting(s) the following status/decisions:-

- SAT for Assam system completed. Data collection for Meghalaya, Tripura & Mizoram completed.
- Network to be finalised based on the feedback of Operational load flow given by NERLDC
- Data collection & database building to be completed for Arunachal Pradesh and Nagaland.
- Prospective Go Live by Dec'19.
- All utilities(esp. nodal officers) to assign the roles and responsibilities as per the circulated format.

Deliberation of the sub-Committee:

Director, NERPC informed that PDMS project would Go Live by second week of Feb'20. The same would be held coinciding with the next OCCM. He requested all the utilities to submit the user names and other details so that access may be given prior to Go Live.

The Sub-Committee noted as above.

Action: PRDC/All utilities.

C.7 Non-availability/ Non-functioning of synchronization facility at numerous stations

As per deliberations in the previous meetings the following is the status for synchronization facility at stations of different utilities:

- AEGCL – along with the black start testing of AGBPP, demonstration of Synchronisation using BCU would be done at Mariani (PG) for which NERLDC will arrange isolation / separation system into two parts and POWERGRID will synchronize the systems in SAS.
- DoP Ar. Pradesh –Lekhi S/S no Sync check relay is available while for Chimpu relay is available. The approval for procurement of trolley/synchroscope by Nov'19.
- P&ED Mizoram - Synchronizing facility with Synchronizing trolley to be established at 132kV Kolasib S/Sn.

Deliberation of the sub-Committee:

The status as updated by different utilities:

- AEGCL - Remote Synchronization using BCU to be tested alongwith mock black start of AGBPP.
- DoP Ar. Pradesh - LoA by Jan'20. Target Completion Mar'2020.
- P&ED Mizoram - SE, SLDC, P&ED Mizoram informed that for Kolasib it is not deemed necessary as power may be extended to Tuirial and synced at Tuirial HEP. NERLDC opined that Synchronization facility is required at 132kV Kolasib to sync with power extended from Badarpur/Aizawl irrespective of availability of the same at Tuirial. This is deemed necessary as during Grid Disturbance/ Black Start the focus is restoration of power at the earliest, so synchronization is required at the node nearest to the ISTS grid. The forum requested P&ED Mizoram to provide synchronization facility at 132kV Kolasib S/S.

The Sub-Committee noted as above.

Action: AEGCL, DoP Ar. Pradesh, NERLDC, P&ED Mizoram.

C.8 Phase shift errors in PMU:

In 155th OCCM Director, NERPC informed that in the Sub-group meeting held on 05.04.19, it was agreed that the matrix of phase comparison for each of the stations vs Bongaigaon will be prepared by NERLDC. NERLDC informed that work is underway and would be completed by April'19.

In 156th OCCM, NERLDC informed that the matrix has been prepared, with deviations being categorized in three groups: (i) +120 deviation, (ii) -120 deviation, (iii) matching w.r.t Bongaigaon.

Sr.GM(AM), NERTS informed that for some ASEB stations 90 deg deviation is present which has to be checked

Within one week the data w.r.t. connection changes will be collected by NERTS in conjunction with AEGCL and rectification would be completed by May'19 for substations with +/- 120 degree and planning of activities to correct the phase shift of -90 or +150 degree group shall be made by May 2019.

In 157th OCCM Sr. GM(AM), NERTS assured that the complete schedule of works would be prepared by 14th June, 2019. The forum requested AEGCL to do likewise.

In 158th OCCM NERTS informed that schedule of works has been prepared and the works would be completed by Aug'19. AEGCL was requested to prepare the schedule of works in consultation with NERTS.

In 159th OCCM Sr.DGM, NERTS informed that action plan shall be submitted within 31.08.19. AGM, SLDC, AEGCL informed that after commissioning of SAS there is no spare panel, TB. So the CT, CVT terminals have to be brought from Kiosk to CR. After detailed deliberation, it was decided that NERTS would visit and analyze for Samaguri the pre-requisites for changing the connections.

The following status was updated by NERTS/AEGCL in the 161st OCCM:

- Bongaigaon - Completed except for New Siliguri-2 feeder.
- Misa - 220 kV Side Completed.
- Dimapur, Mariani, Silchar, Salakati - yet to be started, possible completion by 30.09.19.
- Samaguri sub-station under upgradation under PSDF. Re-connection to the PMU will be done after completion of upgradation work.

In 162nd OCCM the following status was updated:

- Issues in some of the stations have been rectified. NERLDC may confirm or update what to be done for rest of the stations based on the feedback by NERTS after corrections, as per system study group of NERLDC.
- Site drawing for PMU connection has been handed over to Assam which would be adopted (for rewiring etc.) by AEGCL during SAS upgradation in four stations.

Deliberation of the sub-Committee:

Sr. DGM(AM), NERTS informed that corrections have been done in NERTS stations except for one PMU of Bongaigaon and three PMUs of Dimapur, for which NERLDC is required to provide feedback.

The Sub-Committee noted as above.

Action: AEGCL/NERTS/NERLDC

C. 9 Tentative schedule for Black Start & Restoration Procedure Mock exercise in NER during the year 2019

In 163rd OCCM the mock black start schedule status was as below:

- LOKTAK - Mock Black Start at Loktak and Synchronization test at 132 kV Imphal S/S via 132 kV Lokatak – Imphal line, has been completed successfully on 10-12-2019.
- AGBPP - NEEPCO informed that segregation of auxiliary supply has been completed. Presently 2-3 mins are required for shifting of generator from one bus to another and minimum 100MW load is required at 132kV level.
- RHEP – To be done in lean season & after Bus A is restored.

Deliberation of the sub-Committee:

- AGBPP - NERLDC proposed split bus at AGBPP, with charging of one bus by black starting one unit with 220kV AGBPP-Mariani line to be connected to the same bus. Further Bus to be split at Mariani and Bus Reactor to be used as Line Reactor. The Bus Coupler would be used to test for synchronization at Mariani. Limit of Reactive power absorption by the AGBPP unit shall be required to be kept at 5-8MVAR or as per capability curve as inrush would be around 18MVAR after synchronisation of the island, as per study. The forum approved the procedure and suggested that the same may be carried out at a mutually convenient date.
- RHEP – Machine to be synchronized at 132kV and units brought in other bus and done at mutually convenient date.
- Pare – demonstration of Black Start which line would be required. Date has been fixed on 24.01.2020. schedule by 23.01.2020 and finalised.

The Sub-Committee noted as above.

Action: NEEPCO, NHPC, NERLDC

C. 10 DVAR and PSS at AGTCCPP:

In 156th OCCM Sr. Manager, NEEPCO informed that installation and commissioning would be complete by July'19.

In 158th OCCM Sr. Manager, NEEPCO informed that the work would start from July'19, during s/d of Unit 4. Since Unit #4 is having Coupling problem the DVAR & PSS installation is expected to be complete for Unit #4 by Oct'19. For other units the installation would be done subsequently.

In 159th OCCM DGM, NEEPCO informed that OEM Engineering would visit AGTCCPP shortly. It was requested to intimate NERLDC/NERPC during OEM presence to enable visit by a team.

In 160th OCCM DGM, NEEPCO informed that the GTG-IV is still under S/D due to load coupler problem. M/s ABB visited Plant and did some partial work of DVAR of the Unit. They will again visit in the month of Sept'19 and accordingly NERLDC/NERPC will be informed. NERLDC requested NEEPCO to intimate the action plan for installation of DAVR/PSS in the other units at AGTCCPP.

In 161st OCCM NEEPCO informed that AGTCCPP has been requesting the vendor i.e. M/s ABB to install DVR & PSS in GTGs one by one, and tentative visit is in Nov'2019.

In 162nd OCCM DGM, NEEPCO informed that due to outage of Kopili HEP, shutdown of AGTCCPP cannot be taken at the moment. The commissioning timeline of DAVR & PSS shall be decided after return of Khandong HEP.

In 163rd OCCM DGM, NEEPCO informed that DVR installation was completed in Unit 1, 2, 3 & 4 and PSS has been kept OFF in all DVR panels. NERLDC informed that a team from NERLDC visited AGTCCPP on 07.12.19 during the installation. NEEPCO further intimated that some data required for PSS tuning has been asked of CTU and tuning would be done on receipt of data. NERTS agreed to co-ordinate with CTU.

Deliberation of the sub-Committee:

DGM, NEEPCO informed that data requirement has been shared with NERTS. Further he stated that as per prevalent regulations PSS is not mandatory for units less than 25MW. So he requested that AGTCCPP be excused from turning ON PSS. NERLDC clarified that PSS is to be turned ON for AGTCCPP as per grid requirement in view of repeated occurrence of oscillations.

The Sub-Committee noted as above.

Action: NEEPCO.

C. 11 Bus Configuration issues for various sub-stations:

Status as on 163rd OCC Meeting:

- 132kV Transfer Bus at Loktak HEP - Charged on 30.10.2019.
- 400kV Bus A at RHEP - Procurement of the following initiated:
 - Four sets of Pantograph isolators
 - One Set CT(Bus Coupler)
 - One set CVT(Bus-A)
- 132kV Bus Coupler at Pavoï - Old PGCIL panels to be replaced by SAS enabled panels. Protection transfer would be completed subsequently.

Deliberation of the sub-Committee:

- 400kV Bus A at RHEP - Procurement initiated for the stated equipments. Tender by Mar'20. Implementation by Dec'21.
- 132kV Bus Coupler at Pavoï - By 31.03.2020

The Sub-Committee noted as above.

Action: NEEPCO/AEGCL.

C. 12 Status of recommendations reg GD-Vs on 03rd & 20th April,2019:

| Recommendations | Status as informed in the 162nd OCCM | Status as informed in the 163rd OCCM |
|--|--|--|
| Investigation of conductor failure for 400kV Palatana-Silchar D/C (Scope NERTS) | Report submitted to NERPC. Manufacturing defect. Referred to OEM. | Report submitted to NERPC. Manufacturing defect. Referred to OEM. |
| Study for reactive compensation in Tripura System(scope of TSECL) | NERPC vide letter dated 11.10.2019 has written to CMD, TSECL for forthwith submission of data. No update from TSECL | By Jan'20 |
| Identification of feeders for additional UFR based load shedding under Islanding Scheme-II(Scope of TSECL) | NERPC vide letter dated 11.10.2019 has written to CMD, TSECL for procurement & installation of UFRs. No update from TSECL | By Jan'20 |
| Standalone EL for integration of relay at AGTCPP by Oct'19(Scope of NEEPCO) | By Mar'2020 | By Mar'2020 |
| All stations to confirm DR downloading facility and it's healthiness at respective stations. A consolidated undertaking by the respective utility in | NERTS The REL-670 relay at Khandong for Kopili – II feeder is planned to be upgraded by Dec'19. | The DR of the relay pertaining to the 7 th Oct'19 incident has been successfully downloaded. The downloading software |

| | | |
|---|--|--|
| this regard is to be submitted prior to each OCCM. | | shall be handed over to NEEPCO by NERTS team visiting Khandong on 22.01.20. |
| NHPC to procure standalone EL for Loktak HEP | Under process exact date of LOA to be confirmed | Could not be updated due to absence of representative. |
| Revised SPS-3 scheme offer sought from GE by NERTS | M/s GE is yet to submit the detailed breakup. Target: by 30.11.2019 | M/s GE could not submit the detailed break up. |
| Impedance measurement for 400kV Paltana-Silchar D/C, 400kV Silchar-Azara, 400kV Silchar – Byrnihat | Impedance measurement shall be completed by 30.11.19. | Impedance measurement of 400kV Pallatana-Silchar Line done. Results are under examination. Any review in the settings , if required shall be intimated to NERPC by 31.01.20. |
| Line parameters to be matched at Silchar, Azara and Byrnihat. | The reviewed parameters shall be given to Azara by 30.11.19 for implementation. | Shall be done by 31.01.20. Azara may provide the existing settings. |
| NERTS and AEGCL to jointly visit Azara and check exact cause for delay in appearance of voltage input to relay when charged via Tie Breaker | Joint visit done. But the problem of delayed appearance of voltage while charging through Tie CB could not be identified. AEGCL to take up with OEM | AEGCL, NERTS, NERLDC, NERPC to jointly visit 400kV Azara. |

The Sub-Committee noted as above.

Action: NERTS, AEGCL, TSECL, MePTCL, NEEPCO, NETC.

C.13 Tripping of all units of BgTPP:

On 23/05/2019 Units I, II, III of BgTPP tripped at 03:06 hrs, 03:37 hrs, 03:56 hrs respectively. In 158th OCCM NTPC gave a detailed presentation on tripping of the three units on 23.05.2019. The suggested recommendations by NTPC are as follows:

| Sl. No. | Recommendation | Status as informed in the 162nd OCCM | Status as informed in the 164th OCCM |
|---------|---|--|--|
| 2 | Providing alternate cooling water source to compressors | Unit-1 overhead tank connection made, when unit-2 will go under s/d then connection would be completed. S/D planned Apr'2020 | Unit-1 overhead tank connection made, when unit-2 will go under s/d then connection would be completed. S/D planned Apr'2020 |

The Sub-Committee noted as above.

Action: NTPC.

C.14 Transformer Tap Optimization Study:

NERLDC has conducted Transformer Tap Optimization studies considering High Hydro Scenario in North Eastern Region. Suggested taps position of important transformers in NER for maintaining bus voltages within permissible limit as well as to minimize system losses was circulated in the 158th OCCM.

In 159th OCCM NERLDC informed that comments have been received from OTPC and SLDC Meghalaya. AGM, SLDC, AEGCL informed that comments of SLDC Assam would be sent shortly. Meghalaya presented the study done by them on Tap Optimization Study to NERPC and NERLDC. Their effort of study was appreciated by the forum. Members requested NERLDC to send reminder mail.

In 160th OCCM AEGCL informed that the comments would be sent by 06.09.2019.

In 162nd OCCM NERLDC stated that tap position for 400/220kV 315MVA ICTs at Byrnihat is to be changed from 9 to 6. MePTCL agreed in principle subjected to approval from authority.

In 163rd OCCM MePTCL informed that the tap position would be changed by Jan'20 after taking shutdown.

Deliberation of the sub-Committee:

MePTCL informed that EE, Killing has assured that the work would be completed by Jan'20.

The Sub-Committee noted as above.

Action: MePTCL

C.15 Better weather forecasting for power sector by IMD:

Decisions/deliberations in the previous meetings:

- IMD to conduct survey for each of the individual utilities.
- Nodal officers for all the utilities nominated in the 159th OCCM.
- All utilities agreed to install AWR in their stations. All utilities are requested to submit the station list by November 2019.

In 162nd OCC meeting, NERLDC informed that IMD has visited Assam, Tripura and selected the stations where AWS can be installed. The forum requested the nodal officers from other utilities to co-operate with logistic support so that the same exercise may be carried out at the earliest.

Deliberation of the sub-Committee:

NERLDC informed the forum about the report submitted by IMD regarding site selection for AWS. After detailed deliberation it was decided that:

- ISGS stations to be visited by IMD on urgent basis.
- Minute by minute data is to be shared by IMD with all utilities.

The Sub-Committee noted as above.

Action: All utilities as above.

C.16 Frequent trippings in Arunachal Pradesh system:

In 159th OCCM Sr.GM(SO-I), NERLDC informed that in the months of June-July'19 frequent trippings were observed in the 132kV RHEP-Ziro-Daporizo-....corridor and lines connected to Lekhi. He requested the intervention of the forum for proper analysis of the same. Director, NERPC stated that participation of DoP Ar. Pradesh in the Sub-group meeting on Protection and PCC is extremely lacklustre. He requested DoP Ar. Pradesh to ensure adequate participation from concerned transmission division in all the meetings.

SE(SO&PSC), DoP Ar. Pradesh stated that there is no cohesiveness in data collection since engineers are scattered and onsite training is required. It was decided that after 15th August, 2019 scheduling of training is to be done, then DoP Ar. Pradesh to send personnel to Nirjuli(POWERGRID) for practical hands-on training. The following officers were nominated for the training:

- >Moli Kamki, AE, DoP Ar.Pradesh
- >Hibu Bama, EE, DoP Ar.Pradesh
- >Duyo Richo, AE, DoP Ar.Pradesh

In 161st OCCM EE, SLDC, DoP Ar.Pradesh informed that official order has been issued to the aforesaid officers to attend the training at Nirjuli Station. Sr.GM(AM), NERTS informed that no executives have attended the training at Nirjuli Station. The forum viewed the matter very seriously and requested NERPC to take up the matter with CE, DoP Ar.Pradesh.

In 162nd OCCM DoP Ar. Pradesh representative communicated that SE (SO&PSC), DoP, Ar. Pradesh has committed to send personnel to POWERGRID Biswanath Chariali/Misa for training by Nov'19. The forum requested DoP Ar. Pradesh to coordinate with NERTS RHQ for the same. AEGCL also proposed to arrange training on different numerical relays to officials from DoP AP, MSPCL, DoP Nagaland, P&ED Mizoram & TSECL.

Deliberation of the sub-Committee:

After detailed deliberation the forum decided that the following officials from DoP Ar. Pradesh are required to visit 132kV Nirjuli at a suitable time for training:

- >Sh. Moli Kamki, AE, DoP Ar.Pradesh
- >Sh. Hibu Bama, EE, DoP Ar.Pradesh
- >Sh. Duyo Richo, AE, DoP Ar.Pradesh
- >Sh. P. Buchi, AE, SLDC DoP Ar.Pradesh

The Sub-Committee noted as above.

Action: DoP Ar. Pradesh/NERTS.

C.17 Reactivation of SPS -1

The SPS-1 associated with tripping of generation of both Modules of Palatana CCGT (2 x 363.3 MW) is deactivated at present. The same needs to be activated to Avoid Violation of ATC of NER-ER Corridor.

In 162nd OCCM NERTS informed that SPS-1 is turned ON at Silchar Substation. OTPC requested for scheme from Silchar end so that signal send may be reviewed at Palatana. NERTS agreed to share the same.

Deliberation of the sub-Committee:

NERLDC informed the forum about the report submitted by IMD regarding site selection for AWS.

The Sub-Committee noted as above.

Action: OTPC.

C.18 PSS tuning testing for AGTCCPP and Tuirial

Oscillations have been observed near Agartala on 28.10.2019. Also on 27.10.2019 oscillation was observed on Badarpur PMU. During that period, sufficient MVAR fluctuation was observed in Tuirial Unit-1. Oscillation subsided when Tuirial Unit-1 generation reduced and faded as Unit-1 was withdrawn. Hence, PSS tuning test need to be performed in order to check such oscillations.

In 162nd OCCM DGM, NEEPCO informed that on 02.10.2019 BHEL tuned the PSS at Tuirial HEP and the oscillation was observed on 27.10.2019. He assured that BHEL will be called again to plant for rectification. ED, NERLDC requested all generators to do Step response test and results to be submitted to NERPC & NERLDC

Deliberation of the sub-Committee:

Pls refer to discussion in item No. **C.10**. DGM, NEEPCO informed that OEM would visit Tuirial shortly for PSS tuning after completion of work at Kameng HEP. Completion by Feb'20.

The Sub-Committee noted as above.

Action: NEEPCO.

C.19 PLCC link issues

(i) Presently, there is no communication link with Deomali. It is proposed to establish PLCC link between Deomali and AGBPP at the earliest for tele-protection and SCADA data. The approved VSAT for Arunachal Pradesh may be kept in Deomali. In 162nd OCCM it was requested DoP Ar. Pradesh to clarify whether the project envisages to install VSAT for one station or seven (7) stations.

(ii) As per visit of Committee, comprising of members from NERPC, NERLDC, NERTS and P&ED Mizoram, to Kolasib Substation on 30.10.19, it was observed that PCC Link of Badarpur, Tuirial and Bairabi feeders are out of service. The PLCC link is to be restored at the earliest to ensure secure and reliable operation. In 162nd OCCM the following status was given:

- Tuirial HEP - To be restored by Nov'19.
- 132kV Badarpur-Kolasib - NERTS personnel to visit Kolasib. Resolution by Nov'19.
- 132kV Bairabi-Kolasib - Could not be updated due to absence of P&ED Mizoram representative.

Deliberation of the sub-Committee:

The status as updated in the 164th OCC Meeting:

- 132kV Badarpur-Kolasib: PLCC link in place and working.
- 132kV Bairabi - Kolasib: By Feb'20.
- 132kV Tuirial-Kolasib: Restoration by NEEPCO in Jan'20.

The Sub-Committee noted as above.

Action: NEEPCO, P&ED Mizoram.

C.20 Submission of the Annual Load Generation Balance Report (LGBR) for Peak as well as Off-peak scenarios and the Annual outage plan for 2019- 20 by 31.12.19 as per IEGC

As per IEGC, each SLDC shall submit LGBR for its control area, for peak as well as off-peak scenario, by 31st December for the next financial year, to respective RPC Secretariat. The annual plans for managing deficits/surpluses in respective control areas shall clearly be indicated in the LGBR submitted by SLDCs. As per IEGC, all SEBs/STUs, Transmission Licensees, CTU, ISGS, IPPs, MPPs and other generating stations shall provide to the respective RPC Secretariat their proposed outage plan in writing for the next financial year by 31st October of each year. These shall contain identification of each generating unit/transmission line/ICT etc., the preferred date

for each outage and its duration and where there is flexibility, the earliest start date and latest finishing date.

Deliberation of the sub-Committee:

After detailed deliberation it was decided that NERPC would mail the LGBR figures to all SLDCs for ratification.

The Sub-Committee noted as above.

Action: All utilities.

C.21 SCED Refund

In 161st OCCM NERLDC informed that as per CERC order 08/SM/2019 dated 28.09.2019; 400Cr is to be distributed on Pan-India basis. The Account details of all the state utilities/Power Departments was requested for smooth transfer of money.

In 162nd OCCM APDCL informed that a/c details submitted was submitted on 24.10.2019. NERLDC informed that payment for beneficiaries could not be released due to non-submission of account details by Tripura and P&ED Mizoram.

Deliberation of the sub-Committee:

The forum requested all the utilities to submit the details to NERLDC for refund distribution. Members decided to drop the agenda item in the meantime.

The Sub-Committee noted as above.

Action: All DISCOMs.

C.22 Upgradation of 132kV Karong-Kohima

MSPCL informed that NERTS is upgrading the portion of Karong to Mao of 132 KV Karong-Kohima line under NERPSIP. It was discussed and agreed that upgradation (from existing Panther conductor to HTLS) of Mao-Kohima section of 132kV Karong-Kohima is required and same may be included under NERPSIP. DoP Nagaland was requested to initiate revision of NERPSIP scope in this regard.

Deliberation of the sub-Committee:

MSPCL informed that 132kV Karong-Mao section of 132kV Karong-Kohima is being upgraded from ACSR Dog to ACSR Panther. DoP Nagaland informed that 132kV Mao-Kohima section of 132kV Karong-Kohima is already ACSR Panther conductor. The forum decided to drop the agenda item.

The Sub-Committee noted as above.

C. 23 Metering Status Review:

| Agenda Description | Status as updated in the 162nd OCC Meeting | Status as updated in the 163rd OCC Meeting |
|--|--|--|
| <p>Correction of Meter error: (i) Erratic reading: I. Ningthokhoung end of Imphal, II. Kohima end of Karong, (ii) Sign Change: I. Dimapur I & II state end, II. Motanga end of Rangia III. Mokokchung end of Doyang</p> | <p>In 161st OCC Meeting, NERTS informed that they will look into the matter</p> | <p>(i) I. The SEM has been replaced on 13.12.19 at Ningthoukhong(Not in RLDC record, SEM details may provide). (ii) II. Polarity reversal at Motonga end done.</p> |
| <p>SEMs to be Procured</p> | <p>In 162nd OCC Meeting, NERTS informed that concurrence had been completed. Tender issue expected by 31.12.19</p> | <p>Tender issued on 09.01.20. Opening on 23.01.20. LOA expected by 31.01.20.</p> |
| <p>Urgent Meter Replacement of 1. Mariani (AS) end of Misa 2. Mariani (AS) end of Kathalguri 3. Mariani (AS) end of 33 kV Changki</p> | <p>In the 162nd OCC Meeting, it was proposed that SEMs 1. Golaghat end of Mariani 2. Golaghat end of Bokajan will be diverted to 1. Mariani end of Misa 2. 33 kV Mariani end of Changki NERTS informed that they will look into the matter.</p> | <p>1. Mariani end of Misa replaced with new SEM. 2. 33 kV feeders require 5A SEM, which we do not have.</p> |

The Sub-Committee noted as above.

Action: NERTS.

D. ITEMS FOR DISCUSSION

D.1 Generation Planning (ongoing and planned outages)

a. Present per day MU and projected number of days of operation.

| Plants | Reservoirs level in meter | MU content | Present DC (in MU) | No of days as per current generation |
|--------------------------|----------------------------------|-------------------|---------------------------|---|
| Khandong + Kopili stg II | 713.25 | 12 | 1.114 | 11 |

| | | | | |
|--------|--------|----|--------------|---------------------------------------|
| Kopili | | | 0 | Will be “0” until further intimation. |
| Doyang | 315.54 | 14 | 0.138 | 101 |
| Loktak | 767.73 | 77 | 0.5 | 154 |

The outage of other generating stations may be approved considering the present water levels in reservoirs.

Deliberation of the sub-Committee:

NERLDC highlighted that due to unavailability of Kopili HEP and Khandong HEP, constituents should plan for procurement of power for proper portfolio management. NERLDC also highlighted that proper planning of Hydro Generation needs to be done as water available for generation is only for upcoming 2-3 months.

The Sub-Committee discussed and approved the proposed shutdown by Generating Stations as given in Annexure – D.2 which is available in NERPC website.

D.2 Outage Planning Transmission elements

It was agreed in the 99th OCC meeting that shutdown will be availed only after approval is given by the OCC forum. It was also agreed that deferment/revision of outages elements other than already approved in OCC will be henceforth put/displayed in the website of NERPC (**under Operational Activities/OCC Approved shutdown**) as per CERC regulations/ CEA guidelines etc for ensuring smooth & secure grid operation.

Furnishing request of shut down of the element, which was approved by NERPC, by Indenting Agency (ISTS licensees/STUs/Generating Companies) to NERLDC:

In 160th OCCM NERLDC presented a report on the shutdown approval timeline(s) followed in OCC of other regions. It was observed that M+2 month's shutdown was approved in Mth month. For eg. shutdowns from 01.11.2019 to 30.11.2019 is approved in the OCC of September, for which requisition has to be submitted by 5th of September, 2019 i.e. 5th day of the Mth Month, M being the month in which OCC Meeting is held. By following this practice there will be no overlapping of shutdown dates as happening at present. Members unanimously agreed to the practice in other RPCs.

Deliberation of the sub-Committee:

NERLDC informed the forum regarding delay in submission of proposed shutdown list prior to every OCC Meetings. Forum decided that no planned shutdown request for the upcoming month would be entertained after 5th of the current month.

The sub-Committee discussed and approved the transmission line outages proposed by Constituents for February, 2020 which is available in the website of NERPC.

The Sub-Committee noted as above.

Action: All utilities.

D.3 Estimated Transmission Availability Certificate (TAC) for the month of November,2019 - January,2020:

NETC and POWERGRID have submitted the outage data for the month of November,2019 - January,2020. So the attributability of outage of the said elements may please be finalized.

Deliberation of the sub-Committee:

NERTS & NETC informed that the outage data has been submitted.

The Sub-Committee noted as above.

Action: NERTS/NETC.

D.4 Assessment of TTC, TRM & ATC by SLDC on respective Inter-State Transmission Corridor

NERLDC has assessed the state control area wise, state subsystem wise and group of control-area wise TTCs for NER Grid. The study results will be presented during the meeting. SLDCs are requested to check and validate the TTC of their control areas as computed by NERLDC for the period Jan-March'20.

Deliberation of the sub-Committee:

NERLDC informed that if, any issue or clarification required by the states, they can contact NERLDC.

The Sub-Committee noted as above.

Action: All state utilities.

D.5 RGMO performance analysis of events

Decisions in the previous meetings:

- NERLDC to scan PMU records for any event prior to 11:55hrs on 05.02.2019 resulting in droop of frequency by more than 0.03 Hz.
- BgTPP Unit #II mechanical problem in Turbine to be rectified.
- BgTPP DAS data to be submitted for event dated 05.06.19.
- For event dated 21.08.2019 DAS data to be submitted by Kopili HEP, Khandong HEP and Palatana GBPP.

- Reasons for non-sustenance of positive generation of Unit –II & III at BgTPP to be furnished.

In 162nd OCCM NERLDC informed that on 01st November 2019, at 11:16hrs a RGMO event triggered due to loss of generation of the quantum of 1644MW at Akal station. Upon triggering of RGMO the following units demonstrated Positive as well as more than desired response : (i) Loktak Unit 1

The following units demonstrated next to nothing response:

(i) Palatana GTG/STG, (ii) BgTPP Unit 1 (iii) Loktak Unit 3

The following units demonstrated negative response:-

BgTPP Unit 2 & Unit 3

OTPC stated that at that point of time Module-I was in full load operation (Module-II not in service) due to 5% margin initial increase but not sustained because due to dip in frequency the gas compressor drives less gas. The forum requested BgTPP to revert with the reasons for unsatisfactory RGMO operation.

NERLDC informed that DAS data not received from any plant other than Palatana. The forum requested all generators to provide their DAS data whenever required by NERLDC.

Deliberation of the sub-Committee:

The item was deferred for deliberation in the next OCCM.

The Sub-Committee noted as above.

Action: NTPC.

D. 6 Reactive power capability/injection of generating stations:

In 158th OCCM, it was decided that by Aug 1st week reactive capability testing would be done for Palatana and subsequently schedule for testing for other ISGS will be prepared.

In 159th OCCM, NERLDC informed that Palatana is absorbing and generating MVAR as per grid requirement. The testing would be done on 14 August 2019. NERLDC requested NTPC to give a schedule of reactive testing for BgTPP.

In 160th OCCM, NERLDC informed that the reactive capability testing for Palatana was successfully completed on 14.08.19. All the recommendations and decisions during the testing and recorded in MoM are to be implemented by OTPC at the earliest. It was decided that testing for BgTPP would be done in the 3rd week of Sep'19. NEEPCO and OTPC in unison informed the members that AGTCCPP is generating continuous MVAR in limit of their capability. This is highly undesired as it is causing undue stress on the machine as well as excitation system. Member Secretary, NERPC informed that the

matter would be taken up by the Committee and measures would be suggested by the same.

In 161st OCCM the following status was intimated:-

- Palatana GBPP - OTPC requested for a joint meeting w.r.t. implementation of tap changing suggestion as per the reactive capability testing results.
- BgTTP - Testing completed on 30th of Sept. Load angle limiter setting to be increased. NTPC is in the process of consultation with OEM.
- AGTCCPP was requested to suggest a date for the testing at their plant.

In 163rd OCCM the following status was intimated:-

- Palatana GBPP - Joint Meeting of OTPC with NERLDC for GT & UAT tap settings – done on 11.12.19.
- BgTTP - NERLDC recommendation during the test to increase the load angle limiter setting.
- AGTCCPP - Testing at AGTCCPP done on 07.12.19

Deliberation of the sub-Committee:

NERLDC informed the following:

- Palatana GBPP - OTPC intimated that changes in tap settings of GT & UAT will be done for Module-I will be changed in Jan'20 and for Module-II in the next shutdown period
- BGTTP- Testing completed on 30th of Sept. Load angle limiter setting to be increased. BgTTP informed that the same will be implemented during planned SD of the units. U#III-10th May'20 and Unit#II – 1st Nov'2020
- AGTCCPP - Testing at AGTCCPP done on 07.12.19
- Loktak - date to be finalised.

The Sub-Committee noted as above:

Action: NTPC, OTPC, NERLDC.

D.7 3-phase Auto-reclosure for 400kV Silchar-Azara & 400kV Silchar - Byrnihat:

In 160th OCC Meeting NERPC informed that in view of repeated 2-ph/3-ph tripping of 400kV Silchar-Azara & 400kV Silchar-Byrnihat due to back flashover, the 3-ph AR is imperative to be implemented. Sr.GM(SO-II), NERLDC opined that in case of simultaneous tripping of both of these lines, chances of successful 3-ph AR would be remote due to islanding of the Southern grid from NER grid(different frequency). After detailed deliberation it was decided that in order to increase the reliability of the system, 1-ph & 3-ph AR would be implemented for both the 400kV Silchar-Azara and 400kV Silchar-Byrnihat. Forum requested NERLDC to give suggestion regarding which

end check sync and dead sync to be implemented. NERPC informed that this would be further referred to CTU & CEA for concurrence.

In 161st OCCM NERLDC opined that in view of separation of grid(s), the 3 phase AR may not be implemented. Sr.DGM, NERTS stated that 3-ph AR for the 2 lines may be implemented with dead sync at Azara and Byrnihat and check sync at Silchar. This would address the concern of NERLDC. Further SOTF will act for 3-ph through fault at Azara and Byrnihat.

Director, NERPC informed that the proposal was mooted in view of frequent faults due to back flashover affecting more than 2 phases. The forum requested NERPC to take views of CEA in the matter and referred the item to next OCCM for further discussion.

In 162nd OCCM NERLDC informed that the Single phase Auto-reclosure is non-functional at Azara end of 400kV Silchar-Azara and such steps may be taken to restore the same alongwith other anomalies at Azara, prior to implementation of 3-ph AR.

Director, NERPC stated that the views of CEA have been sought i.r.o. of 3-ph AR for 400kV Silchar-Azara and 400kV Silchar-Byrnihat.

Deliberation of the sub-Committee:

Director, NERPC informed that CEA views have been sought for and the matter would be discussed in the next OCCM.

The Sub-Committee noted as above.

Action: NERPC.

D.8 Accurate Load forecasting by SLDCs as per IEGC c1.5.3 for better system operation

RMSE for load forecast of actual data in comparison to that forecasted by the states for the month of October'19 & November'19 is as follows:

| Day | Ar. Pradesh | Assam | Manipur | Meghalaya | Mizoram | Nagaland | Tripura |
|-----------------|-------------|-------|---------|-----------|---------|----------|---------|
| Median (Oct'19) | 15 | 15 | 10 | 25 | 14 | 16 | 12 |
| Median (Nov'19) | 20 | 12 | 8 | 20 | 10 | 9 | 13 |

Forum decided that load forecast error will be monitored in OCC Meeting till the RMSE comes below 5%

In 160th OCCM CGM, NERLDC informed that POSOCO in association with IIT, Guwahati is developing methodology to forecast at the regional level. He requested all SLDCs to be proactive for the same.

The Sub-Committee noted as above.

Action: all SLDCs.

D.9 Continuous shutdown of 220 kV Bus Coupler & 4 x 33 MVA 220/132kV ICT-1 along with associated bays w.e.f 06/09/2019 and shifting of 01 set of 220 kV Bus PT at Dimapur w.e.f 02/09/2019 at Dimapur Substation.

Under the NERSS VIII, SS01 package, the 220/132 kV Dimapur substation is being upgraded from AIS to GIS including replacement of existing 4x33.33 MVA, 220/132 kV single phase unit transformer by 1 x 160 MVA, 220/132 kV 3-phase unit and addition of 1 No 1x160 MVA, 220/132 kV 3-phase transformer.

The existing 220/132 kV Dimapur substation is a conventional AIS substation having 220 kV bays with double main cum transfer scheme and 132 kV bays with single main and transfer bus schemes. Under the NERSS VIII project, all the existing 220 kV and 132 kV AIS bays shall be changed to GIS bays (Double main bus scheme) in the same existing switchyard by creating space for 220 kV GIS building, 132 kV GIS building and outer Gas Insulated Bushings after dismantling the existing tower/ beams/ equipment's along with structures. During this upgradation period, both the 220 kV & 132 kV bays shall be operated on single bus system and only 220 / 132kV 100 MVA ICT 2 shall remain in service. "

As per the proposed up-gradation and dismantling, only 220 KV Bus-A (towards the Transmission line side) will be in service. For construction of 200kV GIS Building and 132kV GIS building following assets at Dimapur substations shall be required to be dismantled.

- (1) 220/132 kV 4 X 33MVA ICT-1
- (2) 220kV ICT – 1 BAY
- (3) 132kV ICT – 1 BAY
- (4) 220kV BUS B
- (5) 220kV BUS COUPLER BAY

The substation layout diagram is attached for further reference.

The existing 220 kV PTs of Bus 1 & 2 are installed where the 220 kV GIS building is proposed to be constructed. As such 1 set of the bus PT is to be shifted to a convenient location towards ICT-2 area.

After shifting of the PT to the new location, dismantling works of the bus coupler bay and ICT-1 bays including the 4x33.33 MVA 1-Phase transformer will commence.

Once the above shutdown is approved, the shutdown shall continue till erection, testing and commissioning of the new GIS system which is February 2021 as per the approved L2 schedule.

Considering the above, It is proposed for Shutdown below mentioned assets under new construction activity related outage:

- a. Continuous Shutdown of BUS A w.e.f 01.11.2019 to 05.11.2019 for shifting of 1 set of 220 kV Bus PT as above.
- b. Continuous Shutdown of the 220kV/132kV 4x 33 MVA ICT – 1, 220 kV Bus -B and ICT-1 bays (Bay No.203 & 204)w.e.f 06/11/19 till erection, testing and commissioning of the new GIS system.

In 160th OCCM, NERLDC informed that during the period of shutdown, power restriction in Nagaland might be required in peak hours and hence concurrence of Nagaland will be necessary to approve the shutdown.

Further, NERLDC informed that as per system studies there will be severe low voltage problem in case of outage of other ICT in service at Dimapur. NERLDC opined that this shutdown would be allowed after restoration of the 132 kV Dimapur – Imphal line. NERTS requested NERLDC to check whether the low voltage issue could be avoided by changing the tap position of the ICTs in Nagaland Power System.

Director, NERPC requested NERLDC to conduct a detailed study so that the matter may be discussed in detail in the next OCCM in presence of officers from DoP Nagaland.

In 161st OCCM, NERLDC briefly stated the study results: Outage of ICT (N-1) 114kV at Dimapur with DHEP generation, 108kV at Dimapur without DHEP generation

In view of the low voltage at Dimapur node NERLDC suggested for reduction of load or MW constrained SPS at Nagaland. Further it was informed that the study was not done considering availability of 132kV Imphal-Kohima, 132kV Dimapur-Kohima and 132kV Karong-Kohima

EE, SLDC, DoP Nagaland informed that any spare or backup is not there for Nagaland. First shifting of towers from Kohima to Dimapur is required so that 132kV Dimapur-Kohima line is in service and Dimapur may draw from Kohima (2 towers displaced by landslide).

Further Nagaland may be allowed to draw via Imphal-Kohima(by using the erstwhile D-I line) at Dimapur. This is only in case of exigency.

Also Karong-Kohima shutdown may be deferred because Nagaland draws from Manipur in case of exigency.

The forum decided that no SPS is required and the shutdowns may be granted subject to restoration of 132kV Dimapur-Kohima line and return of shutdown after upgradation of 132kV Karong-Kohima (HTLS).

In 162nd OCCM Sr.GM, NERTS, Misa informed that mobilization has already been done by M/S Godrej and Shut Down was applied w.e.f. 02.09.2019 but, till date, shut down is not approved.

He further stated that all such delay may be recorded in MOMs of OCC so that necessary justification of delay in project execution may be furnished to CERC by POWERGRID which is mandatory. The forum agreed to the proposal.

EE, SLDC, DoP Nagaland opined that after Hornbill festival shutdown may be given subject to availability of the two links viz. 132kV Dimapur-Kohima and 132kV Karong-Kohima. He updated the status of the 132kV Dimapur-Kohima line: one tower left. Target Nov'19 may be by 10.12.2019. RoW issue remaining to be resolved.

The forum requested for study of N-1 contingency of 100MVA ICT with availability of 132kV Dimapur-Kohima, 132kV Imphal-Kohima and 132kV Karong-Kohima.

After detailed deliberation the forum agreed upon a tentative schedule for shutdown(s) connected to outage of 220/132kV ICT-1 at Dimapur:

(i) NEEPCO shall complete installation of Numerical relay for 132kV Doyang-Dimapur D/C by 27.11.2019. Shutdown for installation of relay for 132kV Doyang-Sanis shall be after Hornbill festival i.e. after 10.12.2019.

(ii) 132kV Karong-Kohima upgradation to be completed and line returned to service by 30.11.2019.

In 163rd OCCM DoP Nagaland informed that the 132kV Dimapur-Kohima is ready for charging, however since the GIS CB at Dimapur(PG) end is non-functional the line cannot be charged at the moment. NERTS informed that the GIS CB for Kohima line has been restored at Dimapur(PG) on 16.12.2019. The forum requested NERTS and P&ED Mizoram to charge the line as early as possible.

Deliberation of the sub-Committee:

NERTS requested for the following shutdown at 132kV Dimapur(PG):

- a. Continuous Shutdown of BUS A w.e.f 01.02.2020 to 06.02.2020 for shifting of 1 set of 220 kV Bus PT as above.
- b. Continuous Shutdown of the 220kV/132kV 4x 33 MVA ICT – 1, 220 kV Bus coupler and ICT-1 bays (Bay No.203 & 204)w.e.f 06.02.2020 till erection, testing and commissioning of the new GIS system.

DGM, MSPCL informed that upgradation of 132kV Karong-Mao would be completed by 11.02.2020. It was informed that since Kohima bus is ACSR Panther, it is not sufficient to cater to Dimapur peak load of 85MW. After detailed deliberation it was decided that a study would be carried out by NERLDC to determine the quantum of

power that can be supplied with availability of 132kV Karong-Kohima, 132kV Dimapur-Kohima and 132kV DHEP-Sanis-Wokha-Kohima.

The forum requested NERTS & DoP Nagaland to restore the 132kV Dimapur-Kohima at the earliest.

The Sub-Committee noted as above.

Action: NERTS, DoP Nagaland, NERLDC.

D.10 Monitoring of Critical Elements affecting the reliability and security of the Grid

| Critical Elements which affect NER/ER TTC/ATC Values and Cause major Grid Disturbance | | |
|--|---|-------------------------------------|
| Sl No | Name of Element | No of Tripping during Oct'19 |
| 1 | 400 kV Bongaigaon - Byrnihat S/C | 1time |
| 2 | 400 kV Bongaigaon - Azara S/C | NIL |
| 3 | 400 kV Silchar - Azara S/C | NIL |
| 4 | 400 kV Silchar - Byrnihat S/C | NIL |
| 5 | 400 kV Palatana - Silchar Ckt-I | NIL |
| 6 | 400 kV Palatana - Silchar Ckt-II | NIL |
| 7 | 400/132 kV, 125 MVA ICT I at Palatana | NIL |
| 8 | 400/132 kV, 125 MVA ICT II at Palatana | NIL |
| 9 | 132 kV Palatana - Surajmaninagar S/C | NIL |
| 10 | 400 kV Balipara - Misa D/C | NIL |
| 11 | 400/220 kV 1x315 MVA and 1 x 500 MVA ICTs at Misa | NIL |
| 12 | 132 kV Imphal - Dimapur S/C | NIL |
| 13 | 132 Khandong - Kopili D/C | NIL |

The Sub-Committee noted as above.

D.11 Implementation of revised SPS-3 scheme

As per the Minutes of 20th TCC & 20th NER Power Committee Meetings held at Guwahati on 12th Sept., 2019 (Agenda No. D 20), the said SPS is to be discussed again in OCC and it is to be put up in the 21st TCC/RPC Meeting.

In 162nd OCCM Director, NERPC recounted the deliberations of the 20th TCC/NERPC meeting, wherein it was decided that the scheme of SPS-3 with generation reduction for Palatana to be reviewed in OCC forum.

OTPC representative stated that 400kV corridor is tripping prone and this triggers SPS-3 condition frequently. Due to this machines come under tremendous stress and their health is affected.

ED, NERLDC stated SPS-3 is necessary for secure operation of the NER Grid. As the generation in the southern NER pocket remains high for most of the time of the day, generation reduction is the only option for successful operation of SPS 3. He stressed upon the forum to implement revised SPS-3 scheme based on flow based scheme at the earliest to ensure reliable and secure operation of NER Grid. Until the implementation of revised scheme, existing SPS-3 to be kept in service as per the real time requirements.

Member Secretary, NERPC decided that the Special Committee tasked for study of backing down generation at Palatana (and other matters) would review the SPS-3 scheme on lines suggested by the 20th TCC/NERPC. The Committee would submit its report by Nov'2019.

Deliberation of the sub-Committee:

After detailed deliberation it was decided that a Special Meeting for review of SPS and Islanding Schemes would be held in Feb'20.

The Sub-Committee noted as above.

Action: NERPC

D.12 Restoration of Assets damaged at Kopili HEP due to failure of Penstock:

220kV Misa-Kopili ckt I, II, III and 132kV Kopili-Khandong D/C are under outage since 07.10.2019. This is considerably reducing reliability of NER grid.

To finalise action plan for early restoration of the said connectivity, it is proposed to form a senior level task force consisting of members from NERPC, NERLDC & NERTS and convene a meeting of the task force at the earliest.

In 161st OCCM it was decided that Member Secretary, NERPC would constitute committee of NERLDC, NERTS and NERPC so that a concise approach may be devised for quick restoration of the links.

In 162nd OCCM Director, NERPC informed that Special Committee Meeting was convened on 06.11.2019. Five areas were identified for early restoration. It was also decided that 220kV System at Kopili is to be handed over to NERTS at the moment for restoration.

Sr. DGM, NERTS stated that the clearing work has started and switchyard area has to be cleared manually. Likely completion by Jan'20.

Further, he informed that separate kiosk is to be installed in lieu of the damaged ones and the requirement of 132/33kV ICT for Auxiliary Supply. After detailed deliberation, the following were decided:

- a. Diversion of Kiosk from Silchar to Kopili.
- b. 220V DCDB and charger to be tested
- c. Particular milestone bar chart to be prepared by NERTS and submitted forthwith.

In 163rd OCCM it was decided that the 2 nos 220/132kV ICTs are to be immediately cleaned by NEEPCO, with the balance works in the switchyard to be completed by NERTS.

Deliberation of the sub-Committee:

After detailed deliberation the following were decided:

- 220kV Switchyard at Kopili HEP to be cleared by NEEPCO within Jan'20.
- C&R Panels to be diverted from Silchar to Kopili
- Misa-Khandong-Kopili link to be restored at the earliest.
- Site report to be submitted by NERTS within 10.02.2020.

The Sub-Committee noted as above.

Action: NERTS/NEEPCO

D.13 Mock Test for SPS in NER

Decision as per the 162ndOCCM:

- a. Periodic Mock test (frequency once in six months) to be conducted for all SPS. However, the scope would not cover physical tripping of elements/generating units. Prior to a Mock Test the modalities and objectives for testing to be determined by Sub-group.
- b. A Special Meeting on SPS would be convened by NERPC in the 3rd week of Nov'19 for review of SPS-5 to SPS-9.
- c. Testing of SPS-1 to SPS-4 agreed in the 1st week of Dec'19 by the team constitutes earlier for mock testing

Deliberation of the sub-Committee:

It was decided that Mock test would be conducted in the month of Feb'2020 after the modalities are finalised in the Special Meeting on SPS.

The Sub-Committee noted as above.

Action: NERPC

D.14 Automatic Generation Control(AGC) in Indian Grid:

Hon'ble Central Electricity Regulatory Commission (CERC) has stipulated the implementation of AGC in Indian Grid.

Stations in NER to have AGC:

BgTPP, AGBPP, Kopili, Loktak, Doyang, Khandong.

In 162nd OCCM NERLDC informed that BgTPP pilot started on 07.10.2019. NERLDC also presented the plant wise communication status till date. The forum noted that Fiber connectivity was discussed in detail in the 15th NETeST and except for Loktak all the plants have Fiber connectivity.

The present status of communication link availability for AGC and proposed plan for provision of redundant communication with route diversity for power plants in NER may be discussed.

Deliberation of the sub-Committee:

NERLDC informed that FO communication path is available for all stations except Loktak HEP. However route redundancy/ alternate path is not available for any of the stations. Communication link availability status to be discussed in next NETeST meeting

DGM, NEEPCO informed that in Dec'19 a Special meeting was held with NLDC wherein it was decided that all NEEPCO stations (except AGBPP) would be excluded from AGC till completion of R&M. The forum noted.

The Sub-Committee noted as above.

Action: NERTS, NTPC, NEEPCO, NHPC.

D.15 Regarding up gradation of Bay control and Relay panels of POWERGRID by constituents under PSDF fund for SCADA integration.

Up-gradation of conventional Bay Control and Relay panels by BCU based control panels for SCADA communication being carried out in some locations by Assam and other constituents under PSDF funds. This shall result in dismantling of existing POWERGRID C/R panels. Power grid suggest that the spare C/R panels to be utilized as regional spare and kept at the dismantled station. Also, Since the BCU based C/R panels shall be controlled from local SCADA which is unique to each station, the commissioning and maintenance of new C/R panels such upgraded shall be responsibility of constituents. Powergrid shall still continue to maintain the bay switchyard equipments.

Deliberation of the sub-Committee:

After detailed deliberation the forum approved the following:

- Spare C/R panels to be utilized as regional spare and kept at the dismantled station
- Commissioning and Maintenance of new C/R panels shall be responsibility of constituents
- NERTS shall still continue to maintain the bay switchyard equipments.

The Sub-Committee noted as above.

D.16 Request for Bay re-location for 220kv Mariani — New Mariani line at New Mariani GSS of PGCIL

The two no. of bays proposed to be allotted for AEGCL at New Mariani GSS of PGCIL for termination of 220kv Mariani — New Mariani D/C line need to re-located since it will be highly difficult to approach the proposed bays as the D/C line will have to cross three major D/C lines at the same narrow area— viz. 400kv MISA- New Mariani D/C, 220kv New Mariani Kathalguri D/C & 220kv New Mariani Mokukchung D/C. For such an arrangement the surveyor has suggested 'line crossing gantries' which will obviously require a large plot of land to be procured for construction of security fencing etc. Further, as per the survey report, the ground clearance of 220kv New Mariani — Mokukchung D/C line is also not enough to allow the new line to pass under it.

Under such circumstances it may be advisable to re-locate the AEGCL bays by way of suitable interchange of the bays at New Mariani

Deliberation of the sub-Committee:

NERTS informed that feasibility has been checked and two towers may need to be constructed to terminate at the new bays. Relay may be exchanged including other C&R instruments. The forum approved the same and referred the matter to the next SCM.

The Sub-Committee noted as above.

Action: NERTS/AEGCL

D.17 Visit of executives from NERLDC for Real time grid operation at SLDCs of NER

Executives from NERLDC shall visit each of the seven SLDCs of NER for performing real time grid operation activities along with the control room operators of respective SLDCs for a complete cycle. This shall help in knowledge sharing and capacity building as well as better coordination between operators of RLDC and SLDCs.

Deliberation of the sub-Committee:

Member Secretary, NERPC appreciated the initiative of NERLDC and acknowledged the importance of good relationship between Control room operators of SLDCs/RLDC.

The forum also decided that SLDCs one at a time might also visit RLDC for performing real time Grid operation

The Sub-Committee noted as above.

Action: NERTS/AEGCL

D.18 RE Generation details

All states are requested to furnish details of RE generations including hydro generations below 25 MW capacity in their respective control area. Also, it is requested to provide details of procedure followed by the respective SLDCs while permitting new RE generation connecting to the state grid.

Deliberation of the sub-Committee:

NERLDC requested the state utilities to furnish details of both the RE under operation and under planning along with the procedure followed for RE connectivity in the state grid.

The Sub-Committee noted as above.

Action: All state utilities.

D.19 Scheduling of Power from Kameng HEP

Two units of NEEPCO's 600MW Kameng HEP project are ready for undertaking commissioning test and first unit is likely to be synchronized on 10.01.2020. However, the required PPAs have not been executed by many of the beneficiaries who have been allocated power from the said project.

The Commission has vide order dated 19.12.2019 directed NEEPCO to approach the Central Government to either pursue the matter with the concerned States or to get the capacity re-allocated suitably.

Deliberation of the sub-Committee:

Director, NERPC informed that 345MW out of 600MW has been given to NEEPCO as merchant power. He requested NEEPCO to enter into agreement for the same.

The Sub-Committee noted as above.

Action: All state utilities/NEEPCO.

D.20 Tripping of all units of AGBPP

All the units of AGBPP tripped on 25th Dec, 2019 due to tripping of Gas Booster Compressor. NEEPCO may please intimate the reason of the tripping of Gas Booster Compressor and actions taken to avoid such events in future.

Deliberation of the sub-Committee:

DGM, NEEPCO informed that 220kV AGBPP- Tinsukia- Namrup tripped at 14:28 hrs on 25.12.2019. However, inspite of faulty conditions attempt was made to charge the line resulting in heavy jerk and tripping of the machines. He informed that such malpractices would not recur in the future. Also, it was informed by NEEPCO that the GBC motor contactor tripped after voltage jerk. The issue shall be rectified by NEEPCO in order to avoid recurrence of such events in future.

The Sub-Committee noted as above.

Action: NEEPCO.

D.21 Utilization of Powertel fiber network in NER for Power System Purpose

The power system data are being transferred across the region through ULDC fibre network as a main path. To increase the reliability of real time data transfer, the fibre network of Powertel may also be utilised as an alternate path to transfer Power System data.

Deliberation of the sub-Committee:

After detailed deliberation the matter was referred to the next NETeST meeting.

The Sub-Committee noted as above.

Action: NERPC.

D.22 Generation forecast on D-2 basis for computation of TTC/ATC

Forecasted generation figures are essential for computation of TTC/ATC figures of ER-NER corridor. In order to facilitate system study for the planned shutdowns (shutdown confirmation by intending agency on D-3 basis, system study by D-2 basis), all ISGS are requested to furnish their forecasted generation by 10:00 Hrs on D-2 basis.

Deliberation of the sub-Committee:

It was informed by the generating utilities that providing 2 day ahead forecast is difficult for RoR, gas plants. After detailed discussion on the importance of availability generation details on D-2 basis, the ISGS stations agreed to send the tentative values on D-2 basis.

The Sub-Committee noted as above.

Action: all generating utilities.

D.23 Auto recloser in 132 kV Rangia – Motonga line & 132 kV Salakati - Gelephu line (International lines connecting Bhutan Power System):

As per the discussions in the 5th Operational Coordination Meeting between India and Bhutan, Bhutan informed that gang operated circuit breaker at Gelephu station has been replaced with independent pole CB for the 132 kV Salakati – Gelephu line and single-phase auto recloser can be operationalized at any time. Bhutan requested India to replace 3 phase gang operated CB mechanism with single phase CBs at Salakati end. In 132 kV Rangia – Motonga line Single Phase Auto Recloser (SPAR) is ready at Bhutan (Motonga) end but not ready at India end due to the same reason. POWERGRID to look in to this matter.

Deliberation of the sub-Committee:

After detailed deliberation it was decided that 3 phase GO CB at Salakati and Rangia is to be converted to Single Pole CB. However NERTS stated that shutdown for the same is required. The forum requested NERTS to prepare the proposal and place it for ratification in the next TCC/RPC with the expenditure being shared under PoC mechanism.

The Sub-Committee noted as above.

Action: NERTS.

D.24 Deployment of First Time Charging Software

NERLDC had procured First Time Charging Software from M/s CDAC which will ease the entire first-time charging process, aid in systematic archiving and tracking and also help in saving paper. To familiarize the utilities with the FTC software, training for Power utilities was conducted on 27.09.19.

It is for your kind information that the ***FTC software has been deployed in the website on 01.12.19*** after incorporating the observations of the participants during the training program. ***All the applications that shall be submitted to NERLDC will be processed in the FTC portal only*** as per the procedure discussed during the training program held on 27.09.19. No hardcopy of the application will be accepted.

The software can be accessed at https://ftc.nerldc.in:8080/FTC_NERLDC/. The procedure to upload the documents as per various categories of charging of transmission element/grant of start-up power/synchronizing of units etc. is available in the Procedure Help section of the software.

A letter dated 10.12.19, regarding the same has been communicated to the utilities.

Deliberation of the sub-Committee:

NERLDC presented the various facets of the FTC software and requested all the utilities to use the same. NERLDC informed that all applications in future shall strictly be applied and processed through the software.

The Sub-Committee noted as above.

Action: all utilities.

D.25 Furnishing Technical and Commercial data for computation of PoC Charges and Losses for April to June'20 (Q1 of 2020-21)

All the power utilities are requested to furnish Technical and Commercial data for computation of PoC Charges and Losses for April to June'20 (Q1 of 2020-21) by 20th January'20.

Deliberation of the sub-Committee:

NERLDC requested all the utilities to submit the data for Q1 2020-21.

The Sub-Committee noted as above.

Action: all utilities.

D.26 Status of CT upgradation

| Sl No | Name of the Line | Remarks | Status as per 161st OCCM | Status as per 163rd OCCM |
|--------------|------------------------------------|--|---------------------------------------|------------------------------------|
| 1 | 132 kV Jiribam-Aizwal | 400/1 CTs at both ends will be replaced by 600/1 CTs | CTs to arrive at site by 30.11.19 | Completed. |
| 2 | 132 kV Jiribam-Haflong | 400/1 CTs at both ends will be replaced by 600/1 CTs | CTs to arrive at site by 30.11.20 | Completed. |
| 3 | 132 kV Khandong -Umrangso-Haflong | 400/1 CTs at Umrangso will be replaced by 600/1 CTs | To be updated by AEGCL | Completed. |
| 4 | 132 kV D/C Doyang - Dimapur | 300/1 CTs at Doyang (NEEPCO) will be replaced by 600/1 CTs | By Dec'20 as informed by NEEPCO | Tender to be floated by Mar-Apr'20 |
| 5 | 132 kV Dimapur-Dimapur 1 & 2 lines | 1200/1 CTs at Dimapur (DoP Nagaland) will be replaced by 600/1 CTs | By Dec'19 as informed by DoP Nagaland | completed |
| 6 | 132kV Lekhi-Chimpu | Upgradation of CT at Lekhi | By Mar'20 by DoP Ar. Pradesh | By Mar'20 |

Deliberation of the sub-Committee:

NERLDC informed that CT upgradation (from 150/1 to 300/1) is required for 132kV Bairabi feeder at Kolasib. P & ED Mizoram requested NERTS to divert the same from Aizawl. The forum approved the same.

The Sub-Committee noted as above.

Action: NEEPCO, NERTS, DoP Ar. Pradesh, P&ED Mizoram.

D.27 Submission of availability of Hot Spares of transformers and reactors of ISTS

Hon'ble CERC has advised POSOCO to collect the availability of Hot spares of Transformers and Reactors of ISTS licensees on quarterly basis. It has been observed by experience that quarterly collection of data has its own issues and challenges. Thus, In order to streamline the process of data collection, it is proposed that ISTS licensees may submit the data of availability of Hot spares of transformers and reactors along with data for verification of transmission elements availability. A separate sheet containing details of all spares, its usage (change over) and outages etc. may be included in monthly outage file.

Deliberation of the sub-Committee:

NERLDC insisted that the details mentioned above has to be submitted as per CERC directives. NERTS requested that POWERGRID may be excused from submission of hot spares availability periodically. Intimation would be given to NERLDC when the spare is put into service. NERLDC mentioned that if the data is not received as mentioned above, the same shall be intimated to Hon'ble commission. The forum decided to discuss the item in the next meeting.

The Sub-Committee noted as above.

Action: NERTS, NERPC.

D.28 Mock Test of Substations and Hot Spares:

It is proposed that in 220 kV and 132 kV substations wherever double bus scheme is available, all the elements connected to one bus be swapped to the other bus in real time. This will help in checking the healthiness of bay which were not used for longer duration and the reliability of the grid.

Also, to check the availability and healthiness of hot spares, it is proposed to conduct mock test of hot spares in real time.

The Sub-Committee noted as above.

D.29 Arrangement of Cold Spares to Hot Spares:

It is requested to explore the possibility of arrangement of cold spares into hot spares wherever available for quick restoration of power supply in case outage of any single phase unit and to reduce downtime of the elements.

It is also requested to all the utilities to share the list of cold spares and regional spares by 31st January'2020.

Deliberation of the sub-Committee:

NERTS informed that it is not possible to arrange cold spares to hot spares. NERLDC requested all the utilities to share the list of cold spares and regional spares by 31st January'2020.

The Sub-Committee noted as above.

Action: all utilities

D.30 Protection related issues of Dikshi HEP Evacuation System:

NERLDC vide its letter dated 19.07.19 to M/s Devi Energies Pvt. Ltd. (DEPL) stated that there is no carrier aided inter-tripping at Tenga & Dikshi for 132 kV Dikshi – Tenga line, 132 kV Tenga – Balipara line and 132 kV Tenga – Khupi line and requested to mention the timeline for the implementation of the scheme.

M/s Devi Energies Pvt. Ltd. (DEPL) vide its letter dated 20.07.19 replied that PLCC vendor had been identified and would deliver the product as per PGCIL approved drawings within two months from the date of receipt of purchase order.

A letter dated 07.01.2020 from NERLDC was communicated to DEPL to update the status.

Deliberation of the sub-Committee:

Director, NERPC informed that the matter would be taken up by NERPC with DoP Ar. Pradesh separately.

The Sub-Committee noted as above.

D.31 Progress report of states:

All the SLDCs are requested to intimate status of the ongoing projects on monthly basis.

Deliberation of the sub-Committee:

NERLDC informed that except APGCL the latest progress report is pending for all state utilities.

The Sub-Committee noted as above.

Action: All concerned utilities.

D.32 Protection Conclave:

Power System Protection Conclave will be organized by NERLDC on 16th and 17th March'2020 where eminent personalities from academics and power industry, like IITs, PRDC, NLDC, POWERGRID etc. will be participating. Therefore, all the utilities are requested for active participation to make the program a grand success.

Deliberation of the sub-Committee:

NERLDC requested all the utilities to delegate concerned officers to participate in the conclave.

The Sub-Committee noted as above.

Action: all utilities.

Metering Agenda

D.33 High SEM Time Drift:

Time drift in SEMs may result in computational errors in Regional Energy Accounts & Weekly Loss. All constituents in whose premises the meters are installed are required to take corrective action for time correction whenever meter time drift > 1minute and submit weekly compliance report of the same to NERLDC.

The compliance report of many locations as detailed in Annexure D.33.a, are not received by NERLDC and Annexure D.33.b provides location details of Drift correction action not being done / weekly SEM data not sent.

Deliberation of the sub-Committee:

NERLDC intimated that 400 kV Azara is one of most vital s/s and high time drift observed at 400 kV Azara end of Bongaigaon SEM & 400 kV Azara end of Silchar SEM. NERTS agreed to replace them immediately.

The Sub-Committee noted as above.

Action: NERTS.

D.34 Meter Errors:

Pair check error observed in following location, CT / PT error suspected.

- I) Imphal (S) end of Imphal (PG) –II : NP-9546-A
- II) PK Bari end of Kumarghat : NP-6875-A
- III) Dullavchera end of Dharmanagar : NP-9438-A

Deliberation of the sub-Committee:

NERTS agreed to attend both ends for necessary correction.

The Sub-Committee noted as above.

Action: NERTS.

ADDITIONAL AGENDA ITEMS FROM OTPC

D.35 WBES related problems

Website URL related issue <http://103.7.131.231/wbes>, On dated 12th Sept 2019 from 20:27 Hrs we observed that the URL traffic was rejected by our External firewalls. Our IT Team investigated the issue and the observations are as follows...

On diagnoses of the above issue our IT team identified that the URL <http://103.7.131.231/wbes> is blacklisted on global reputation database. And since our firewalls are rapidly updated with global URL web filtering database, it identified “bad IP reputation” of NERLDC Server <http://103.7.131.231/wbes> and started rejecting the traffic to the IP.

It is our request you to kindly investigate the issue and take necessary action at NERLDC’s end for removal of blacklisting of the website from global reputation database.

“Multiple Vulnerabilities in Google Chrome V.78.0.3904.70” our On line web base scheduling system of NERLDC function only on chrome. So we are compel to use Chrome for our day to day official work related to WBES. In the view of above it is requested to Kindly take necessary action to design WBES site which can support other internet explorers also to ensure uninterrupted uses, may refer Government guideline to design and host web applications.

Deliberation of the sub-Committee:

NERLDC informed that the WBES IP mentioned above has been diagnosed by NERLDC IT Department and it has been found that the IP is NOT blacklisted on global reputation database as being claimed by OTPC.

It was also informed by NERLDC that the present version of WBES supports Chrome browser only. The concerns mentioned by OTPC has already been informed to the developer of WBES (M/s PwC) and the issue shall be taken up for rectification in the next version of the web based software

The Sub-Committee noted as above.

Action: NERLDC.

D.36 Fixed SG in case of low demand

Providing SG @ 65% of installed Capacity in case of low demand for reliable operation of OTPC units.

Deliberation of the sub-Committee:

The forum decided to take up the agenda for discussion in the next OCCM.

The Sub-Committee noted as above.

Action: OTPC/NERPC.

D.37 Shutdown of plant

OTPC informed that high demand season for NER has been fixed from August-September. However the present tariff regulation has disincentivised taking shutdown during high demand season. Since the shutdown period for gas plants has already been decided in previous OCC, it was requested to provide relief

Deliberation of the sub-Committee:

The forum decided to take up the agenda for discussion in the next OCCM.

The Sub-Committee noted as above.

Action: OTPC/NERPC.

ADDITIONAL AGENDA ITEMS FROM OTPC

D.38 Ramp up/Ramp down of units

NTPC informed that +/-25MW ramp up/ramp down is creating problems for 250MW machine is creating problems.

Deliberation of the sub-Committee:

The forum decided to take up the agenda for discussion in the next OCCM.

The Sub-Committee noted as above.

Action: NERPC.

D.39 Presentation on Dynamic Line Rating by Ampacimon

Country Head, Ampacimon gave a presentation on DRL. The brief highlights as follows:

- Enhancement of capacity for 40-50%
- Not a substitute for upgradation
- Unlocks hidden capacity of the line
- Ambient condition is taken into account
- Wind speed is very critical and varies a lot with time and location
- Capacity increases by 50% if wind speed is taken into account
- Uses: OHL cannot be build up fast enough, Renewables integration, loop flows creates spurious congestion, scheduled maintenance difficult to plan, scheduling & forecasting
- Sensor mounted on the OHL, critical spans are monitored, fitted in the lowest conductor, very high precision accelerometer, vibration of the line measures the sag(within the tolerance of 15cm)
- Wind speed, angle of wind, dissipation of heat gives the measurement of further possible loading
- SIM card installed inside the accelerometer
- Products supplied: ADR view(before any installation)-gives possible gain, ADR Sense – the OHL vibration sensor, ADR Operate – gives real time view, ADR trend- short term forecast, ADR forecast – long term forecast
- Data can be integrated in EMS-SCADA.
- Ambient adjusted rating

The Sub-Committee noted as above.

ADDITIONAL AGENDA ITEMS FROM NERTS

D.40 SCADA AMC charges

NERTS requested MSPCL to release INR 3.45 Cr as part of payment against SCADA AMC charges for SLDC Manipur. Manipur informed that they will look into the matter and clear the outstanding dues soon.

The Sub-Committee noted as above.

Action: MSPCL.

ADDITIONAL AGENDA ITEMS FROM NERLDC

D.41. DSM, RRAS, FRAS & Reactive Quarterly Reconciliation:

Requested all to sign the Second Quarter Reconciliation statements which were send in the month of October'19.

Same are also available in NERLDC website on the following links:

DSM: <https://www.nerldc.in/dsm-reconciliation/>

RRAS: <https://www.nerldc.in/rras-reconciliation/>

FRAS: <https://www.nerldc.in/fras-reconciliation/>

Reactive: <https://www.nerldc.in/reactive-reconciliation/>

The Sub-Committee noted as above.

Action: all utilities.

D.42. Circulation of Draft Black Start and Restoration Procedure of NER 2019

In line with Regulation 5.8 of IEGC, NERLDC shall be publishing the updated Black Start and Restoration Procedure of NER 2019 in January 2020. The draft procedure has been circulated for comments from all constituents via email dated 23/12/2019. A reminder email has also been sent regarding the same on 10/01/2020. Comments have not been received from any constituents of NER till date.

Also, List of important load points were circulated among all SLDCs via email dated 13/01/2020 for updating respective load connected in those points. The details of load has only been received from Meghalaya and Tripura. All other SLDCs are requested to kindly furnish the same at the earliest.

Deliberation of the sub-Committee:

NERLDC informed about the circulation of draft procedure on 23.12.2019 but no comments received so far. The forum approved the procedure for publishing.

Format for submission of Load point data was circulated on 13.01.2020, but data not received from states except Tripura and Meghalaya.

The Sub-Committee noted as above.

Action: all state utilities.

D.43 Intimation of element tripping by SLDCs to their respective MRT wing

Deliberation of the sub-Committee:

All SLDCs agreed to share the information of any event in their respective state grid immediately in real time among all intra state utilities.

The Sub-Committee noted as above.

D.44 LILO of 132kV Dimapur-Imphal at Karong:

For increasing the reliability of power supply at Karong area of Manipur, LILO of 132kV Dimapur – Imphal at Karong was suggested by NERLDC. The forum approved and referred the matter to the next NERSCT meeting.

The Sub-Committee noted as above.

Action: NERPC

D.45 Diversion of line reactors to Biswanath-Chariali:

NERLDC requested that as agreed in the 2nd NERSCT/1st NERPCT the two line reactors for 400kV BNC-Subansiri line is to be used temporarily at Biswanath Chariali as Bus Reactors. The forum requested NERTS to carry out the necessary diversion and erection works.

The Sub-Committee noted as above.

Action: NERTS

Date & Venue of next OCC meeting:

It is proposed to hold the 165th OCC meeting of NERPC on third week of February, 2019. However, exact date and venue will be intimated in due course.

Annexure-I**List of Participants in the 164th OCC Meeting held on 21.01.2020**

| SN | Name & Designation | Organization | Contact No. |
|-----------|--|---------------------|--------------------|
| 1. | Sh. Purik Buchi, A.E (E) | Ar. Pradesh | 09402936916 |
| 2. | Sh. T.K. Mahanta, CGM, SLDC | Assam | 09435340383 |
| 3. | Sh. P.K. Baishya, AGM , APDCL | Assam | - |
| 4. | Sh. Dipesh Ch. Das, DGM (LDC) | Assam | 09954110254 |
| 5. | Sh. Bimal Ch. Das, AGM, SLDC | Assam | 09435119248 |
| 6. | Sh. Nabanit Hazarika, AGM (HQ), AEGCL | Assam | 09435386310 |
| 7. | Sh. Sanidhya Baruah, AGM (IT), APDCL | Assam | 09435355692 |
| 8. | Sh. Mriganka Bhuyan, AGM (SLDC), AEGCL | Assam | 09601302916 |
| 9. | Sh. Jyoti Rabha, AM, APDCL | Assam | 08402981282 |
| 10. | Sh. H. Debeswar Singh, Manager | Manipur | 09436201742 |
| 11. | Sh. Jayela Wahengbam, Dy. Manager (SLDC) | Manipur | 09856875084 |
| 12. | Sh. B. Nihla, EE, MePTCL | Meghalaya | 09436314163 |
| 13. | Sh. T. Gidon, EE (SLDC) | Meghalaya | - |
| 14. | Sh. D.J. Lyngdoh, EE, SM | Meghalaya | - |
| 15. | Sh. M.N. Tariang, JE, SP | Meghalaya | 07005620013 |
| 16. | Sh. Lalbiaksanga, SE (SLDC) | Mizoram | 09436140932 |
| 17. | Sh. Lengmuilal Singson, SDO (T) | Nagaland | 09436831124 |
| 18. | Sh. Rokobeito Iralu, SDO (T), Dimapur | Nagaland | 09436837020 |
| 19. | Sh. Anil Debbarma, DGM, SLDC | Tripura | 09612589250 |
| 20. | Sh. Joypal Roy, DGM (E/M) | NEEPCO | 08837200069 |
| 21. | Sh. A.S. Nath, DGM (E/M) | NEEPCO | 09435339743 |
| 22. | Sh. Bhaskar Mazumder, Manager (E/M) | NEEPCO | 09612079362 |
| 23. | Sh. Sundar Moni Mohan, Manager (E/M) | NEEPCO | 09436898604 |
| 24. | Sh. V. Suresh, ED | NERLDC | 09449599156 |
| 25. | Sh. R. Sutradhar, CGM (SO-I) | NERLDC | 09436302714 |
| 26. | Sh. S.C. De, GM | NERLDC | 09436335269 |
| 27. | Sh. Amaresh Mallick, CGM (SO-II) | NERLDC | 09436302720 |
| 28. | Sh. M.P. Nath, Ch. Manager | NERLDC | 09436335374 |
| 29. | Sh. Sourav Mandal, Dy. Mgr (SO-I) | NERLDC | 09402102354 |

| | | | |
|-----|---|-------------|-------------|
| 30. | Sh. Kritika Debnath, Engineer | NERLDC | 09436930830 |
| 31. | Sh. Jerin Jacob, Dy. Manager | NERLDC | 09602120113 |
| 32. | Sh. U.Kataki, Sr. GM (AM) | PGCIL | 09435505418 |
| 33. | Sh. H. Talukdar, Sr. DGM (AM) | PGCIL | 09436335237 |
| 34. | Sh. Narendra Kumar Gupta, Sr. Manager (O) | OTPC | 09774233426 |
| | No Representative | NHPC | - |
| 35. | Sh. S.K. Nayak, DGM (OS) | NTPC | 09437043291 |
| 36. | Sh. Sajeev Mohandas, DGM (EEMG) | NTPC | 09496006403 |
| 37. | Sh. Ratan Singh Basnet, Dy. Mgr. | NETC | 08811072489 |
| 28. | Sh. A.R. Sah, DGM | NETC | 08811072489 |
| 39. | Sh. K.V. Ramaswamy, Country Head | Ampacimon | 09841019352 |
| 40. | Sh. A.K.T hakur, Member secretary | NERPC | - |
| 41. | Sh. B. Lyngkhoi, Director | NERPC | 09436163419 |
| 42. | Sh. S. Mukherjee, Dy. Director | NERPC | 08794277306 |