

North Eastern Regional Power Committee

Agenda

For

6th NETeST Sub-Committee Meeting

Time of meeting : 10:00 Hrs.

Date of meeting : 11th May, 2017 (Thursday)

Venue : "Hotel Nandan", Guwahati.

A. CONFIRMATION OF MINUTES

CONFIRMATION OF MINUTES OF 5th NETeSTS Meeting held on 16.11.2016.

The minutes of 5th NETeST Meeting held on 16th November, 2016 at Guwahati were circulated by NERPC vide letter No. NERPC/SE(O)/TeST/2016/ dated 27th December, 2016.

MePTCL vide letter No. SLDC/EE/SM/Tec-13/2016-17/7 dated 10.01.2017 requested the NETeST sub-committee to amend the Item No. A7 with regards to nominee from Meghalaya.

A.7. Finalization of Consolidated OPGW Network & Installation Project:

Amendment to be Recorded:

The nominee for the committee from Meghalaya are:

- 1) Shri B.Nikhla, EE(SP), MePTCL
- 2) D. J. Lyngdoh, EE(SM), MePTCL
- 3) B. Narry, AEE(CC), MePTCL

The Sub-committee may discuss and confirm the minutes of 5th NETeST meeting of NERPC as no other comments/observations were received from the constituents.

ITEMS FOR DISCUSSION

A.1 Status of SLDCs in NER:

SN	Utility	Present Status	Status as informed in 5th	Target Completion
UPGRADATION OF SLDCs				
1	Assam		Completed: Main SCADA/EMS system in April 2016 EMS Tuning left. Supply of DG set by January. Completion by March 17.requirement.	except DG set- Target Feb17.

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2	Tripura		Completed: Main SCADA/EMS system in April 2016. Balance: EMS data tuning (as per PRM). New Spare/RTU	except DG set-Target Feb17.
3	Meghalaya		Completed: Main SCADA & EMS system in April 2016 Balance: EMS data tuning (as per PRM) & DG set ,New Spares	except DG set-Target Feb17.
4	NERLDC		WIP: SCADA, EMS (90% completed)	31.12.2016
NEW SLDCs				
5	Manipur		Completed: Main SCADA/ EMS system in September 2016. Balance: DG Set, New Spare	except DG set-Target Feb17.
6	Nagaland		Another 6-8 week required for completion of site work (including AC, LT panel and Earthing). By December 2016.	28.02.2017
7	Mizoram		Installation in progress. To be completed by January 17.	except DG set-Target Feb17.
8	Ar. Pradesh		WIP: Space earmarked for SLDC still not vacated. NERPC to communicate with Power Minister and Power Secretary so that the project is not delayed	except DG set-Target March17.
9	B/UP NERLDC		80% completed. Balance: DG Set & others.	31.12.2016

During 5th NETeST, GE/Alstom informed that all SLDCs must get the DG set Foundation Pad & earthing ready before time by the civil department as per design already forwarded to each utility. When DG set is delivered by end of January, 2017, it will be directly unloaded into the DG set Pad. He also requested AEGCL to give concurrence about sizing of additional requirement of RTU so that amendment can be done by NERTS in time. Other states were also asked to provide concurrence of spare RTU sizes which is proposed to be equal to that highest/biggest sized RTU of that state under this. He also requested all SLDC to make available 2 Mbps internet lease line with Public static IP for Firewall and patch update/web server management. SE(O) NERPC requested Alstom to write a letter in this regard to all SLDCs. Concern of delay of project due to non-readiness of trench/RTU from TSECL, non-readiness of site in time for Dimapur, Mizoram, AP utilities were also discussed.

Concerns were raised by AEGCL about plan of EMS tuning to be done by Alstom without actual data since many RTU are not reporting. Alstom representative clarified

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that the same has already been consented in last PRM-06 and that GE cannot postpone the EMS SAT indefinitely (beyond March17) and requested SLDC Assam to opt for actual data, if 70%-80% RTU are reporting or may opt for simulated data. AEGCL requested Alstom to show EMS test with actual data when available even during warranty/AMC period after completion/TOC of project without any extra cost and as such demonstration through simulated data need not be done. Further, MSPCL representatives informed that since main SCADA EMS has been commissioned on 08.11.2016 the same has to be made operational for Manipur SLDC. It has been declared that DOCO of Manipur SLDC may be considered to be started from 09.11.16. Further regarding GPRS, all utilities again requested POWERGRID to expedite GPRS scheme implementation as per approval of 17th TCC/RPC and revised cost after award approval, may be intimated to forum.

Members may kindly intimate the status.

A.2 Non-reporting of RTUs of Constituents on Existing SCADA:

A). POWERGRID: 3 RTUs not reporting out of 20 RTUs & 1 Partial.

- a. KOPEX SAS line flow is OK but BUS data suspect.
- b. Mokokchung out from 28.04.2017
- c. Nirjuli out since 07.10.2016
- d. Ziro out since 07.08.2016
- e. Status of CS RTUs on single link & requirement of 2nd link back up/redundant channel. Lists as on 04/05/2017.

- 1) 800 KV HVDC_BNC (Only one channel made)
- 2) 400 KV MISA (2 channels made but only 1 available)
- 3) 400 KV Bongaigaon (Only one channel made)
- 4) 400 KV Silchar (Only channel made)
- 5) 220 KV Dimapur (two channels but only 1 available)
- 6) 220 KV Salakati (Only one channel made)
- 7) 132 KV Imphal (2 channels made but only 1 available)
- 8) 220 KV MOKOKCHUNG (Only one channel made)
- 9) Ranganadi ISGS (2 channels but (only one available)
- 10) 132 KV ITANAGAR (Only one channel made)
- 11) KATHALGURI, ISGS (only one channel available)
- 12) PALATANA, ISGS (Only one channel made)
- 13) 132 KV Kumarghat (2 channels made but only 1 available)
- 14) LOKTAK ISGS (2 channels made but only 1 available)
- 15) KHANDONG, ISGS (2 channels made but only 1 available)
- 16) JIRIBAM (2 channels made but only 1 available)
- 17) AIZAWL (only 1 available)

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18) BADARPUR (2 channels made but only 1 available)

19) 220 KV MARIANI (Only one channel made)

POWERGRID may kindly give the status.

B). NEEPCO

- a. Doyang HEP out from 24.01.2015
- b. Kopili HEP not reporting from 09.05.2015.
- c. Ranganadi HEP not reporting from 21.05.2016.
- d. Khandong HEP not reporting from 16.09.2016

In the last meeting NEEPCO confirmed to solve the issues along with links in line with grid codes at the earliest. As per intimation vide Ref No NEEPCO/ED(O&M)/OPR-01/16-17/638-40 dated 9.1.2017 Doyang, Kopili and Khandong RTUs are under process of installation. The matter needs urgent action.

NEEPCO may kindly intimate the current status.

C). AEGCL:

In the new system, only 20-RTUs are reporting against 61 RTUs.

This creates loss of observability of NER Grid specifically during grid problems. Restoration of all the non-reporting RTUs needs urgent action. Details shown in **Annexure-A.2**. The same also highlighted in the weekly telemetry status reports but tangible solution is yet to be achieved.

AEGCL may kindly intimate the current status & reasons.

D). MePTCL/MeECL: 13 RTUs are reporting out of 22 RTUs.

Generating Stations: Umiam-4 & LESHKA not reporting. Dedicated voice communication is yet to be established for Leshka HEP.

Sub-Stations: 1. 400 KV Byrnihat / 220 KV Killing S/S
2. 132 KV Khliehriat S/S 3. EPIP-I 4. EPIP-II 5. Lumshnong
6. Cherrapunji 7. Rongkhon

MePTCL may kindly intimate the current status & actions taken.

E). TSECL: 8 RTUs are reporting out of 25 RTUs. Non-reporting RTUs are given below:-

Generating Stations: Gumti (since Jan, 2011), Rokhia (U-3 NA, all CB status suspect)

Sub-Stations:

Amarpur, Badharghat, Belonia, Bokafa, Boxanagar, Dharmanagar, Dhalabil, Gamaitila, Gournagar, Kamalpur, OMPI, Rabindranagar, Sabroom, Satchand, Udaipur .

TSECL may kindly intimate the current status

F). Manipur SLDC of Manipur was declared commission vide Ref No NERLDC/SL/SCADA-Upgrade-Vol-II/8566-68 dated 15.03.2017. However only 2 nos of RTUs namely-Yaingangpokpi & Ningthoukhong are found to be reporting out of 11 RTUs as on 4/5/17 and No ULDC Communication system is established till date.

Manipur may kindly intimate the current status & actions taken.

G). Mizoram SLDC is likely to be commissioned but VC, Voice Communication system yet to be established. Status of RTUs to be included needs to be intimated.

H). AP and Nagaland may kindly intimate the current status SLDC establishment & RTU Status.

I). 132 KV BADARPUR-LUMSNONG telemetry LINK out:

BADARPUR S/S (Assam) telemetry data is not coming.

Lumsnong S/S (Meghalaya) telemetry is not available.

Real-time draws for Assam and Meghalaya affected due to non-telemetry problem. Real-time Grid Management process hampered.

Status in both the S/S may be intimated at the earliest.

A.3 Status of SDH installation by POWERGRID:

As per deliberation of 21st UCC meeting due to some unavoidable contractual issue/constraints beyond POWERGRID's control, though awarded but implementation has been delayed. Now the matter has been sorted out with M/s KEC, supply has been confirmed for SDH units for ULDC nodes and target completion date is May 2015.

During 5th NETeST meeting, it was informed that LOA has already been placed to ECI for installation in ULDC nodes by M/s ECI. The materials were supplied by KEC under MW vacation project. All utilities have been asked to ensure healthiness of air conditioning and DC/Aux supply as required. Further, during survey of ECI, it was requested that all necessary help may be extended by utilities States & Central Sectors. It has been deliberated that necessary shut down as required during replacement of SDHG equipment (Siemens make by ECI make) will be provided by NERPC/NERLDC from time to time basis. Further it was discussed that new SDH may be kept parallel for some days before fully dismantling of old. However same will be done subject to space constraint.

NERTS may kindly intimate the status.

A.4 Replacement of Multiplexers:

As per deliberation of 21st UCC meeting POWERGRID informed the forum that ABB has replied for repair of cards. As discussed with AEGCL, MePTCL has been again requested to take up checking of healthiness of FOX515-Mux & then repairing of existing Mux through ABB alike NERTS. Contact details will be provided to MePTCL.

During 5th NETeST meeting, Manager NERTS informed that he had already mailed the details of nodes to all states and requested all the states to reply/give comments at the earliest. He requested all State utilities to give feedback after the meeting.

With request of Assam, PDH multiplexers are to be included for Assam in Pkg-4C are namely—a) Gohpur, b)Kahilipara, c)Mariani Grid S/S, d)Lakwa Thermal Power Station & e)Namrup Thermal Power. The above were requested during MW Vacation project itself but due contractual obligation and as non-inclusion of scope in original project, the same was not included in MW vacation.

Further in line with 15th TCC/RPC (Replacement of PDH nodes of ULDC Phase1 locations in NER" was approved in 15th NERPC-Aug'2015. MOM -Item.A.18 /page33), replacement of PDH mux FOX615 may be taken care in the package-4C awarded to M/s Tejas. Further for inclusion of PDHs/SDHs as required for SLDCs, Manager, NERTS stated to refer the RPC MOM.

MePTCL/POWERGRID may kindly intimate the current status.

A.5 Finalization of Consolidated OPGW Network & Installation Project:

During 4th NETeST meeting, Manager (AM), NERTS informed that as per earlier decisions, it was again requested to all constituent again that all may submit the state-wise total network to NERPC and a meeting through study group & representatives from states may be called for consolidated discussion on channel planning etc. For ring format formation/redundancy as per network shown necessary fibers along with protection pair will be provided as & where required

OPGW network (962 Kms) implemented under ULDC project by POWERGRID has completed more than 13 years after commissioning. This will achieve its useful life of 15 years in 2018. There is a need to take up replacement of the same so that the replacement is in place by the time 15 years period is complete and data communication is not hampered. Also, around 1158 Kms OPGW is also required to be established on various lines of Central Sector to provide redundancy in the system. It is proposed to constitute a Committee comprising members from various constituents to study the requirement in detail and come out with their recommendations for implementation of the OPGW requirement.

LIST OF OLD CS LINKS: SC&C--ULDC Project Central sector OPGW (running with 12F only) which are to complete 15years in 2018			
	FROM	TO	KM RL
1	Kahelipara	Umiam III (ASEB/MESEB)	59.132
2	Umiam III	Umiam I(MESEB)	17.455
3	Umiam I	NEHU(MESEB)	10.257
4	NEHU	Shillong***UNDER GROUND FO	6.23
5	NEHU (MESEB)	Khliehriat (MESEB)-ckt-1	64.094
6	Khliehriat (MESEB)	Khliehriat (PGCIL)**	7.791
7	Khliehriat	Khandong(PGCIL)	40.99

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8	Khandong(PGCIL)	Koplili (PGCIL)	11.191
9	Misa(PGCIL)	Koplili (PGCIL)	73.186
10	Misa(PGCIL)	Balipara(PGCIL)	94.046
11	Misa(PGCIL)	Dimapur(PGCIL)	119.192
12	Badarpur(PGCIL)	Khelihiriat(PGCIL)	73.183
13	Badarpur(PGCIL)	Kumarghat(PGCIL)****	117.519
14	Agartala Gas(PGCIL)	Kumarghat(PGCIL)****	99.817
15	Agartala (PGCIL)	Agartala Gas(PGCIL)****	7.416
16	Dimapur (PGCIL)	Kohima(PGCIL)	59.8
17	Kohima(PGCIL)	Imphal(PGCIL)	105.64
Sub Total SC&C			966.94

During the 17th TCC meeting, the matter of replacement of ULDC OPGW link and NER- FO expansion was referred to NETeST for discussion. A committee may be constituted for finalization of schemes regarding replacement of ULDC OPGW replacement, NER-FO expansion. Forum may also co-opt members for installation of terminal equipments etc.

During 5th NETeST a committee was formed with members from each constituent to finalise the recommendation of CS links which are required to be added.

Further it was decided that all the members will take up with competent authority for respective utility for their internal approval internal (with departmental). Further all members are requested to collect all data relevant to different projects from their respective department/division/head quarter as undergone/consented by state authority/central authority. This will be required for overall visualization of optical network in NER for present & future.

Further, as enquired by Meghalaya, it was clarified in forum that there were two items approved in TCC.

- a. No. A.11, Additional Communication Scheme (538+217=755km)--approval was already accorded
- b. No. A.12 –Reliable Communication Scheme—(966+1158=2124-Central sector) -- -Approval accorded for committee formation to finalize the list of CS links

EE, SLDC, AP requested that connectivity as possible for AP may be done i.e. wide band location of CS may be extended further so that Arunachal Substations nearer may be connected over PLCC or so up to that point. It may be noted that the link of Tezu-Namsai (96km) has to be considered in this respect for completion of link up to Namsai and may be included.

It was further intimated by POWERGRID that links-202km as requested by Manipur MSPCL(TCC A.34) could not be considered in the existing project due to contractual limitation under on-going project & delay that occur (due to late inclusion of links) for final petition filing to CERC. Hence, it is proposed that the requirement of Manipur/MSPCL may be taken care in the discussion as to be held by committee under A.12.

Members may like to discuss.

B. NEW ITEMS

B.1 On Job Training for SCADA for identified employees of new SLDC:

It is proposed that NERLDC & SLDC-Assam, Tripura, and Meghalaya may facilitate on the job training for to be deployed employees of new SLDCs of Manipur, Mizoram, AP, and Nagaland.

During 5th NETeST meeting, EE, DoP Nagaland informed that they will be sending their members for training after installation of new system. All other SLDCs were requested to send their representative to SLDC Assam & NERLDC for training as per their requirement & with mutual discussion

NERLDC may kindly intimate current status.

B.2 Strengthening of PLCC System by NER States:

PLCC system works as a back-up path for telemetry of RTUs. It is proposed that each constituent may kindly revive/ install PLCC as per relevant norms for 132Kv & above T/Ls for data path connecting to respective SLDC.

Each state may discuss about their present status of connectivity & future plan PLCC connectivity.

During 5th NETeST meeting, Assam representative informed that they are trying to revive the PLCC network and some of the stations (Namrup, Lakhwa) have started reporting on the revived PLCC network.

Manager (AM), NERTS informed that NERTS has extended the annual rate contract for PLCC network to ABB & soon LOA will be placed. However, for future, it was also emphasized that respective utility as per relevant IEGC may connect up to the wide band location through PLCC or as possible.

EE, DoP Nagaland informed that they have issued LOA for revival of PLCC network in four stations. They are facing issues with contractor and it may take 3-4 months. POWERGRID has provided detailed requirement of PLCC-link revival to representative of Nagaland so that the requisite RTUs as covered under SLDC project may report to SLDC Nagaland, Nagarjun. Nagaland assured to take up the same (LOA placement for modem, data card & service engineer soon) with higher authority.

EE, MePTCL informed that they are using PLCC for voice communication. Arunachal Pradesh was requested the same.

Members may like to discuss.

B.3 New SCADA – Upgradation Project/PMU Related Issues:

Point-1: In order to have a complete SCADA network & to complete the Installation, a minimum of 02 (Two) communication links from each SLDC to NERLDC is required as also noted in Item 1-A (vii). As of date, only 01 link each to Assam & Tripura has been provided & it is understood that there is some last minute hurdle in terminating the

NEHU link. POWERGRID may provide 02 (Two) links each from existing SLDC to RLDC. The links to new SLDCs (Mizoram, Manipur, Nagaland and Arunachal) are to be provided subsequently. This is apart from the dedicated VC network.

As per deliberation of 5th NETeST meeting,

Point 1: Target date of providing 2nd link for SCADA/ EMS up-grade project: **23rd November, 2016.**

NERTS may kindly intimate the status.

B.4 MW Vacation Project:

During 5th NETeST meeting, Forum expressed that project should be completed without further delay. KEC expressed different issues like ROW, re-work and frequent bandhs as reasons of delay. The forum insisted that higher authority of KEC may attend the meeting onward. Assam informed that during that rectification work, link E1 Samaguri to Tinsukia was disturbed which KEC should immediately restore. KEC confirmed to do so. KEC further informed that relaying of 24F approach cable in upper Assam has been completed & further requested AEGCL to give receipts of Earth wire reconciliations as submitted. Site Manager-KEC provided the following time line for linking the following with KEC equipment:

- a. Agia BTPS to Agia Sarusajai- SAT by December 2016 (5 nodes).
- b. Balipara to Gohpur - By December 2016.
- c. Samaguri-Mariani-Lakwa-Namrup-Tinsukia - Completion By January 2016.(Samaguri to Sarusajai/Kahilipara link on optical or E1as required to be arranged through AEGCL optical network—for NMS manage & data plus voice)
- d. Badarpur-Panchgram to Jaribam- By Feb 2016.
- e. The forum requested KEC to provide complete time line for all the nodes and mail the same. KEC confirmed that all works would be completed by 1st week of April2017. Gohpur to Kahilipara & Badarpur to Kahilipara link to be arranged under CS link for initial 2years by POWERGRID or till networks are connected.

DGM, AEGCL requested the forum for early completion of work so that more numbers of RTU can be reported. He also states that KEC must show end to end connectivity between station for each pair of fiber before completion & submit OTDR test report to AEGCL. He also informed that there was lapse on part of KEC in providing AMC contract. The forum requested to KEC to provide continuity in AMC contract. No interruption should be there.

KEC assured the same. Further it was again told by KEC that there is delay in OPGW over EHV connectivity to Namsai Central Sector POWERGRID/AP (as per original provision of contract) till date. It was noted that OPGW over 66kVTinsukia-Rupai-Namsai was to be discarded at present (as 66kV Rupai -Namsai is already abandoned & there is no EHV line further up to Namsai for OPGW). Forum agreed & suggested the said OPGW may be utilized as spare or/& for new CS links like Pare Generation/NEEPCO connectivity, Different State SLDC connectivity & as suitable. Forum agreed to look in to Namsai Central sector connectivity later in new project after committee discussion in line A.7 above. Further connectivity to SLDC-AP,

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Chimpu (via Nirjuli-Leikhi-Chimpu) is to be expedited by POWERGRID. Instead of Nirjuli (PG) to Leikhi, AP may provide clearance of laying OPGW over any other 33KV link to connect to Leikhi as existing Nirjuli-Leikhi line will be abandoned. KEC, POWERGRID & AEGCL had assured to do start SAT (joint verification & signing would be done in for links one by one) at the earliest possible.

AEGCL, POWERGRID may kindly intimate the status.

B.5 Additional MUX, STM for completion of connectivity:

- a. PDH multiplexers -additional 4nos. are also considered from AEGCL.
- b. PDH mux considered for new SLDC locations, Old ULDC nodes-CS part & Kahilipara SLDC.
- c. SDH-STM 16 considered for ring formation & SLDCs as per diagram. STM-4 considered for branches of FO network which are not required in loop.

Network is proposed keeping in view data congestion & redundancy considering PMU, SCADA, VOICE network/projects. List is attached

During 5th NETeST meeting, it was decided that the agenda will be jointly discussed in the committee formed.

All Constituent may please deliberate.

B.6 Maintenance of RTUs installed under ULDC Projects for Central Sector Generating stations.

As part of the ULDC projects, RTU which are commissioned at various Central Sector Generating stations are presently maintained by Powergrid. As per CERC Regulation for ULDC projects, the recovery period of the capital cost towards investment by Powergrid through tariff is 15 years and accordingly Powergrid will maintain there RTU till the completion of 15 years since DOCO for the respective region.

All the concerned Generating Companies/ utilities are requested to take necessary action for maintenance / replacement of the aforesaid existing RTU installed in their respective Power plant after completion of useful life of 15yr from DOCO to ensure continuous reporting of data to respective RLDCs.

All Constituent may please deliberate.

B.7 Status of Optic fibre works in NER:

Optic fiber works in NER are going very slow, for example optic fiber works at Balipara-Ranganadi links, Ranganadi- Lekhi links, Ranganadi-Ziro link, Silchar Palatana link etc. This delay results in inter alia, non-availability real time data from Ranganadi, Nirjuli, Ziro and Palatana at NERLDC.

Availability of real time data at control centres is critical in real time grid operation as well as post disturbance analysis. Many grid disturbances are not being able to analyze properly as a result of non-reporting of RTUs due to delay in completion of optical fiber works.

NERLDC may please deliberate.

Additional Agenda item from NEEPCO

B.8 OPGW link between RHEP Power house and Biswanath Chariali/ Nirjuli sub-station Required.

The RTU of Ranganadi Power House is working properly at Ranganadi. The Link with SCADA at RLDC is disrupting many times due to weak link with Ranganadi. OPGW link may be established between Ranganadi and Biswanath Chariali/ Nirjuli.

NEEPCO may please deliberate.

Additional Agenda item from NERLDC

B.9 PMU Display availability at SLDC:

Due to non-availability of separate communication links, PMU Displays are not available at all the SLDCs. A workaround may be that of using one of the SCADA (ICCP) links for both ICCP as well as PMU display. In this case the Internal Firewall of RLDC & SLDC need to include one additional policy for making through the PMU display traffic. As such, no security violation is envisaged as only HTTP port of PMU Historian need to be forwarded.

Members may discuss & if agreed, M/s GE may be requested to do the configuration.

B.10 Security Arrangement for SCADA System:

Presently, the SCADA/EMS Upgrade Project is running through its final phase & all state SLDCs except Arunachal & Nagaland are integrated with NERLDC. This network is also connected to rest of the RLDCs via NLDC. In this scenario, any security incident/ intrusion in one system will affect other connected systems also. Therefore hardening of the security of SCADA/EMS system is a necessity. The requirement may be defined in Two Parts: Cyber Security & Physical Security.

Cyber Security may be implemented by proper configuration of the security features available in the SCADA/EMS system viz. a uniform and effective Cyber Security Policy across the SLDCs & NERLDC, Firewall policies allowing only necessary traffic & discarding others, disallowing Remote Access of the system unless authorized by the system owner, regular check of the system for Updates/ Patches, proper maintenance of Patch Management server etc.

Physical Security is necessary to prevent mishandling/ misconfiguration - intentional or accidental, unauthorized removal of asset from the system, connecting/ disconnecting external devices like laptop, pen drive, dongle and the likes unless unavoidable etc.. One effective way of implementation of physical security is Installation of CCTV Camera/ Surveillance System at strategic locations like Control Room Entry & Server Room Entry, Inside Control Room & Server Room, UPS/ Battery Room, DG Set etc.

Members may please discuss.

B.11 Furnishing of detail parameters for the On-going Projects likely to be commissioned within 6 months by Constituents:

NEEPCO Projects:

1. Kameng HEP (4X150 MW)
2. PARE HEP (2X55 MW)
3. Tuirial HEP (2X30 MW)

POWERGRID :

1. 400KV D/C Balipara-Kameng
2. 400 KV Imphal s/s & associated lines Thoubal S/S (Manipur)
3. 400 KV D/C Silchar-Melriat line
4. 132 KV Silchar-Hailakandi & Bays at Hailakandi.
5. 400/132KV, 1X315MVA ICT-III at Silchar, 220/132 KV, 2X160 MVA ICTs at Balipara, 220/132 KV, 1X160 MVA at Kopili,

AEGCL : 220 KV Rangia-Salakati

Tripura : 132 KV D/C Manarchak –Surjamaninagar

This is for kind information that before commissioning any new projects, the connectivity conditions pertaining to Telemetry Data/Voice communication systems in terms of **clause 4.6.2 of IEGC 2010 read with Clause 6(3) of CEA (Technical Standards for connectivity to the Grid) Regulations, 2007** are to be fully met and the real time data of the station parameters be made available at the control centres alongwith voice communication systems at the time of commissioning. Moreover, it may also kindly be noted that as per recommendations of the Committee on Grid disturbance" Report on the Enquiry Committee on Grid Disturbance in Northern Region on 30th July 2012 and Northern, Eastern & North Eastern Region on 31st July 2012" dated 16.08.2012, clause (xiv) which is reproduced as follows - **"Proper telemetry and communication should be ensured to Load Despatch Centres from various transmission elements and generating stations. No new transmission element/generation should be commissioned without the requisite telemetry facilities"**.

In view of the above,. the following informations/ parameters are required to be furnished to NERLDC in advance for making the platform for Database:-

- Single Line Diagram of the Power Station/Switchyards.
- Data List of the Station (to check the signals of both Analog & Digital).
- Wiring diagram of the Station (to check the wiring done at RTU end).
- Generator Parameter details- Generator Transformer parameters.
- ICT details. Any additional requirement to be intimated.

Constituents to submit detail parameters projects under their jurisdictions & fulfill the condition of IEGC.

B.12 Status of Optic fiber works in NER:

Optic fiber works in NER are going very slow, for example optic fiber works at Balipara-Ranganadi links, Ranganadi- Lekhi links, Ranganadi-Ziro link, Silchar Palatana link etc. This delay results in inter alia, non-availability real time data from Ranganadi, Nirjuli, Ziro and Palatana at NERLDC.

Availability of real time data at control centres is critical in real time grid operation as well as post disturbance analysis. Many grid disturbances are not being able to analyze properly as a result of non-reporting of RTUs due to delay in completion of optical fiber works.

List of on-going optical fiber is attached as **Annexure B-12**.

NERLDC may please deliberate.

B.13 Status of RTU replacement and procurement of new RTUs:

SCADA data from KATHALGURI, DOYANG, KOPILI, KHANDONG, RANGANADI, ITANAGAR, ZIRO etc., are out since long due to which Grid management activity is severely affected.

RTU Outage details are given below:

Sl. No.	Station Name	Date of Outage
1	Ranganadi	21.05.16
2	Ziro	07.08.16
3	Kopili	09.05.15
4	Doyang	24.01.15
5	Khandong	16.09.16
6	Khatalguri	25.07.16
7	Haflong	14.09.16
8	Itanagar	01.08.16

Status as per discussions in 130th OCC

Sl. No.	Station Name	Status as informed in 130 th OCC
1	Ranganadi	Re-tendering stage. Work will be completed by Dec'2017.
2	Ziro	ABB has done site visit. Report awaited.

Agenda for 6th NETeST Meeting to be held on 11th May, 2017

3	Kopili	By 31.05.2017 will be commissioned.
4	Doyang	By 30.06.2017 will be commissioned.
5	Khandong	By 31.05.2017 will be commissioned.
6	Kathalguri	Restored. Data received at NERLDC.
7	Haflong	PLCC panel shifted. Link yet to be established. Will be complete by 31.01.17.

The Sub-Committee took serious note of non-reporting of new RTUs due to link non-restoration/failure. Since the issue involves common link jurisdiction between CSGS and CTU, the **matter was referred to next NETeST meeting for resolution.**

List of RTU under SCADA upgradation project in NER is attached as **Annexure -B.13.**

Members may please intimate the latest status.

Any other item:

Date and Venue of next NETeST

It is proposed to hold the 7th NETeST meeting of NERPC on second week of July, 2016. The date & exact venue will be intimated in due course.

ASSAM

Name of Utilities	Name of Substations	Name of Substations as per SCADA System	STATUS (as on 02/05/2017)	REMARKS
1	Agia	AGIA__AS	Not Reporting	
2	APM	APM__AS	Not Reporting	
3	Azara	AZARA_AS	Not Reporting	
4	Badarpur(Panchgram)	BADAR_AS	Not Reporting	
5	Behiating	BIHIA_AS	Not Reporting	
6	BiswanathChariyali	BNC__AS	Not Reporting	
7	Bokajan	BOKAJ_AS	Reporting	
8	Bokakhat	BOKAK_AS	Reporting	
9	Boko	BOKO__AS	Not Reporting	
10	Bongaigaon (BTPS)	BONGA_AS	Partially Reporting	Digital and ICT 1 data not coming
11	Bordubi	BORUD_AS	Not Reporting	
12	Bornagar	BORNA_AS	Not Reporting	
13	Chandrapur	CHAND_AS	Reporting	
14	Depota	DEPOT_AS	Not Reporting	
15	Dhaligaon	DHALI_AS	Reporting	
16	Dhemaji	DHEMA_AS	Not Reporting	
17	Dibrugarh	DIBRU_AS	Not Reporting	
18	Diphu	DIPHU_AS	Partially Reporting	Digital and ICT 1 data not coming
19	Dispur	DISPU_AS	Not Reporting	
20	Doomdooma (Rupai)	DOOMD_AS	Not Reporting	
21	Dullavcherra	DULLA_AS	Not Reporting	
22	Gauripur	GAURI_AS	Not Reporting	
23	Gohpur	GOHPU_AS	Not Reporting	
24	Golaghat New	GOLAN_AS	Not Reporting	
25	Gossaigaon	GOSAI_AS	Not Reporting	
26	Haflong	HAFLO_AS	Not Reporting	
27	Hailakandi	HAILA_AS	Not Reporting	
28	Jagiroad (Baghjap)	JAGIR_AS	Not Reporting	
29	Jawaharnagar	JAWHR_AS	Not Reporting	
30	Jorhat (Garmur)	JORHA_AS	Partially Reporting	Only Bus data, Bokajan Line flow and ICT 2 & 3 flow reporting
31	Jorhat West	JRTWT_AS	Reporting	
32	Kahelipara	KAHEL_AS	Reporting	CB Status not coming
33	North Lakhimpur	LAKHI_AS	Not Reporting	

34	KarbiLangpi	LANGP_AS	Reporting	Wrong Data of Bus voltage and frequency
35	Lakwa (LTPS)	LAKWA_AS	Not Reporting	
36	Lanka	LANKA_AS	Reporting	Only CB status coming
37	Majuli	MAJUL_AS	Not Reporting	
38	Margherita	MARGH_AS	Not Reporting	
39	Mariani	MARIA_AS	Reporting	
40	Moran	MORAN_AS	Reporting	
41	Nagaon	NAGAO_AS	Not Reporting	
42	Nalbari	NALBA_AS	Reporting	
43	Namrup	NAMRU_AS	Not Reporting	
44	Narangi	NARAN_AS	Reporting	
45	Nazira	NAZIR_AS	Not Reporting	
46	Pailapool	PAILA_AS	Not Reporting	
47	Panchgram Old	PANCH_AS	Not Reporting	
48	Rangia	RANGI_AS	Reporting	
49	Rowta	ROWTA_AS	Reporting	
50	Rupia	RUPIA_AS	Not Reporting	
51	Samaguri	SAMAG_AS	Reporting	
52	Sarusajai	SARUS_AS	Reporting	
53	Sibsagar	SIBSA_AS	Not Reporting	
54	Silchar (Srikona)	SRIKO_AS	Not Reporting	
55	Sipajhar	SIPAJ_AS	Not Reporting	
56	Sishugram	SISHU_AS	Reporting	
57	Tinsukia	TINS1_AS	Not Reporting	
58	Sonabil	SONAB_AS	Reporting	
59	Sonari	SONAR_AS	Not Reporting	
60	Sam TezGoh	STF_F_AS	Not Reporting	
61	Umrangsho	UMRAN_AS	Not Reporting	

NameofProject:MWREPLACEMENTPROJECTNERTS**A. CentralSectorLinks**

S.N.	NameofLine	SUPPLY Revised Route length-KM	ERECTION Revised Route length-KM	RevisedSector	LatestStatus	REMARKS
1	Badarpur Silchar (19.221	19.221	CS		Change in length after prepared
2	Gohpur(AEGCL) Itanagar(PG)	0		CS		Deleted but replaced S.N.A.8,9,5
3	Mariani (State) Mariani (PG)	1.52	1.52	CS		Lengthrevisedafter Construction
4	Namsai (PG) Tinsukia(State)----	0	0	CS		Link is achieved through OPGW/** ADSS over 33kV Namsai(PG)-Namsai(APState)-Rupai(AEGCL)-60KM to
	Theabove4replacedby following4.a&4.b&10 **			CS		
4.a	RanganadiZiro	44.292	44.292	CS		Link is must keeping in no connectivitywithZiropart, TelemetrydataofZiro&Nearby stations arereqdtobemonitored
4.b	Balipara Rangana di LILQpart	25.89	25.89	CS		Thisisrequiredforcontinuation NKN Link Balipara-Nirjuli(part over BaliparaRanganadi)
5	Itanagar (PG) Itanagar (SLDC) replacedby 5 a)&5 b	0	0	CS		DirectlinkNASodeleted.UGFO laid by Telecom, Telecom requestedthatredundancytobe maintainedthroughOPGW.
5.a	LILONirjuliRanganadi &	5.554	5.554	CS		Ranganadiendtoberedundantly connectedfrom Nirjuli
5.b	Nirjuli--Lekhi-Chimpu	13.63	13.63	CS		Chimpu is SLDC location &so connectivityrequired
6	Badarpur (PG) Kolasib	106.759	106.759	CS		Change in length after
7	KolasibAizawl(PG)	65.73276	65.73276	CS		Change in length after prepared
8	Gohpur-Ranganadi(NEPCO)-- achieved through &8.2			CS		BackLinkandfor Mainlink ofConnectivityofRanganadi. ISGS
8.1	132KV Gohpur(AEGCL)-Nirjuli(PG)-(Part)	12.033	12.033	CS		
8.2	400kV Balipara(PG)-	61.239	61.239	CS		

S.N.	Name of Line	SUPPLY Revised Route length- KM	ERECTION Revised Route length- KM	Revised Sector	Latest Status	REMARKS
9	132kV Nirjuli(PG)-Ranganadi(NEPCO)	21.692	21.692	CS		(Nirjuli-Ranga-21.5km, Parey LILO-5km, Future Diversion-2)
10	66kV Tinsukia(AEGCL)-Rupai(AEGCL)-[under Namsai-Tinsukia]	24.824	24.824	AEGCL		Part of Tinsukia-Namsai(PG) Link, approx length after survey
11	132KvS/C Imphal(PG)-Imphal(STATE)	0.769	0.769	CS		uldc&Diff Protectio
12	132kVD/CSilchar(PG)-Srikona(AEGCL)	1.199	1.199	CS		uldc&Diff Protectio
13	132Kv D/C	1.611	1.611	CS		uldc&Diff Protectio
14	132kV D/C Melriat(PG)-Sihhmui(State)	6.441	6.441	CS		uldc&Diff Protectio
15	132kV Aizwal(P)	4.959	4.959	CS		uldc&Diff Protection, Remote Operation
16	400KV BONG-NTPC	0		CS		Connectivity of NTPC-GSat BTPS/Salakati
17	132KV U-Khliehriat(Upto Tower No.25)-For redundant	7.532	7.532	CS		Redundant connectivity between NERLDC&SLDC
subTotal		424.89776	424.89776			
Under Priority Erection of Following Links (Central Sector) considered where materials are						
19	220KV MISA-SAMAGURI	34.374	34.374			Erection qty amended under priority link in last amendment
20	400KV BT PS-Bongaigaon(NTPC) & Up Salakati-	4	4	CS		OPGW(3.5KM) laid on 400kV BNG-BTPS(NTPC)-220kV BTPS(AEGCL) instead of original plan of 400kV BNG-220kV SKT-BTPS(AEGCL). Connectivity of Bongaigaon with Salakati over ICT extension bay(500m) will be included/ taken from spare
21	220KV BT PS-Salakati(PG)	0	0	CS		
22	Dimapur-Dimapur(SLDC)	0.647	0.647	CS		NERLDC requested in UCC meeting vide Letter Ref. NERLDC/UCC/NEULDC_O&M /353-79 Dtd. 15.7.13. Point No.5. Eof MOM
22	Aizwal-Aizwal/Zimabawk(SLDC)	6.719	6.719	CS		
Sub-Total I		470.63776	470.63776			S.N. 19,20,21 diverted from NR project

B.AEGCLSector

S.N.	Name of Line	SUPPLY Revised Route length-KM	ERECTION Revised Route length-KM	Revised Sector	Latest Status	REMARKS
1	BTPS Agia220	65.5736	65.5736	AEGCL		Changein lengthafter DS prepared
2	AgiaSarusujai220	130.481	130.481	AEGCL		NoChange
3	Inclusionof220kVBoko&400kVMirjaS/S(LILOin Ag-SSJ)	0.5	0.5	AEGCL		NoChange
4	NamrupTinsukia132	43.571	43.571	AEGCL		Changein lengthafter DS prepared
5	BaliparaGohpur132	101.124	101.124	AEGCL		Changein lengthafter DS prepared
6	Badarpur(PG)Badarpur (AEGCL)	1.023	1.023	CS		Changein lengthafter DS prepared
7	Jiribam Pailapool132	12.753	12.753	AEGCL		Changein lengthafter DS prepared
8	PailapoolSrikona132	33.692	33.692	AEGCL		Changein lengthafter DS prepared
9	Badarpur(AEGCL) -Srikona	19.586	19.586	AEGCL		Changein lengthafter DS prepared
SubTotal		408.3036	408.3036			
UnderPriorityErection ofFollowingLinksconsidered(underAEGCL)wherematerialsare OSM(Diverted/exchangebetweenNR-NER)						
10	132kVMariani-Lakwa	79.298	79.298			Erection qtyamended under prioritylink in last amendment
11	220kVDCSamaguri-Mariani	169.717	169.717			Replenishmentof 5.743km to Jeypore & Erectionqty amended underprioritylinkinlast amendment-1
12	132kV Namrup-Lakwa()	58.394	58.394			Erectionqty amended underprioritylinkinlast amendment-1
	Sub-	715.7126	715.7126			km
			715.7126			km
MAIN OPGW		1186.35036	1186.35036			
ADDITIONOF SPAREAS PER BOQITEM		44	0			(Inamendment-2,Spare wasseparatelymentioned inLOAqttyonly/notin listof line'Annx
SPARECSNERinclchangein RL while erection		30				
SPAREAEGL		8				
SPARECSNR		6				
GrandTotalsofOPGWlength inclSpare(Apx)		1230.35	1186.35			

NorthEasternRegionExpansionProject-Proposed lines--Approved15THTCC,RPCGuwahati-Anx-B-29.I								
Sl No	From	To	KVLE VEL	Owner oftrline	OldLength(km)	Revised Length(km)	Remarks	Current Status
1	Khandong	Haflong	132	CS	63	63	Live Line	
2	Badarpur(PG)	Jiribam(PG)	132	CS	67	67	LiveLine	
3	Jiribam(PG)	Loktak(NHPC)	132	CS	82	82	LiveLine	
4	Loktak(NHPC)	Imphal(PG)	132	CS	35	35	LiveLine	
5	Agartala(PG)	RCNagar(NEEPCO)	132	CS	8	8	LiveLine	
6	Dimapur(PG)	Doyang(NEEPCO)	132	CS	93	93	LiveLine	
7	Doyang(NEEPCO)	Mokokchung (PG/State)	132	CS	30	30	LiveLine	
8	Mokokchung(PG)	Mokakchung(State)	132	CS	3	3	LiveLine	
9	Mokokchung(PG)	Maryani(PG)	220	CS	56	56	LiveLine	
10	Silchar(PG)	Malriat(PG)	400 chargedat 132kV	CS	160	160	LiveLine	
11	Silchar(PG)	Bongaigaon(PG)	400	CS	247	0	LinkRemove	
12	Surajmaninagar(TSECL)	Pallatana(OTPC)	400 chargedat 132kV	CS	35	35	LiveLine	
13	Mariani(State)	Kathalguri(NEEPCO)	400 chargedat 220kV	CS	163	163	LiveLine	
14	Silchar(PG)	Srikona(AEGCL)	132	CS	3	3	LiveLine	
15	Bongaigaon(PG-400kV)	Salakati	220	CS	1	1	LiveLine	
16	Kohima(132KV)	Kohima(220KV)	132	Nagaland	25	25	LiveLine	
17	UmiamIII(D/C)	Umtru	132	Meghalaya	42	0	LinkRemoved	
18	NEHU(S/C)	NEIGHRIMS	132	Meghalaya	9	9	LiveLine	
19	Khliehriat(PG)	Khliehriat(State)(S/C)	132	Meghalaya	6	6	LiveLine	
20	Khliehriat(State)(D/C)	MyntduLeshka-HEP	132	Meghalaya	25	25	LiveLine	
21	Khliehriat(PG)	Lumshnong(S/C)	132	Meghalaya	25	25	LiveLine	
22	Silchar(PG)	PK'bari(TSECL)	400 chargedat 132kV	TSECL	122	0	LinkRemoved	
23	P.K.Bari(TSECL)	Surajmaninagar(TSECL)	400KV chargedat 132kV-Future	TSECL	130	0	LinkRemoved	
24	Agartala(TSECL)	BaramuraGTP	132	TSECL	30	30	LiveLine	
25	Agartala(TSECL)	Surajmaninagar(TSECL)	132	TSECL	20	20	LiveLine	
26	Surajmaninagar(TSECL)	Badharghat	132 (future)	TSECL	9	9	OffLine/Shutdown	
27	Surajmaninagar(TSECL)	Gokulnagar	132 (future)	TSECL	15	15	OffLine/Shutdown	

28	Surajmaninagar(TSECL)	Budhjungnagar	132	TSECL	20	20	LiveLine	
29	Pallatana(OTPC)	Udaipur(TSECL)	132	TSECL	12	12	LiveLine	
30	Udaipur(TSECL)	RokhiaGTP	132	TSECL	40	40	LiveLine	
31	RokhiaGTP	Rabindranagar-66kv	66(future132)	TSECL	23	23	OffLine/Shut down	
32	Udaipur(TSECL)	GumtiHEP	66	TSECL	45	45	LiveLine	
33	GumtiHEP	Amarpur(TSECL)	66	TSECL	30	30	LiveLine	
34	Udaipur(TSECL)	Bagafa(TSECL)	66(future132)	TSECL	25	25	LiveLine	
35	Bagafa(TSECL)	Belonia(TSECL)	66(future132)	TSECL	15	15	OffLine/Shut down	
36	Bagafa(TSECL)	Satchand(TSECL)	66(future132)	TSECL	22	22	OffLine/Shut down	
37	Satchand(TSECL)	Sabroom(TSECL)	66	TSECL	15	15	LiveLine	
38	Imphal(PG)	ImhalState	132	Manipur	1	0	LinkRemoved	
39	Loktak(NHPC)	Ningthoukhong (State)	132	Manipur	11	11	LiveLine	
40	Ningthoukhong(State)	Imphal(State)	132	Manipur	28	0	LinkRemoved	
41	Imphal(State)	Karong	132	Manipur	60	60	LiveLine	
42	Karong	Kohima	132	Manipur	50	0	LinkRemoved	
43	Mizoram1	Mizoram2	132	Mizoram	59	0	LinkRemoved	
44	Yurembam	Yaingangpokpi	132	Manipur	0	42	Link Added/LiveLine /offline	
45	Yaingangpokpi	Kongba	132	Manipur	0	32	Link Added/LiveLine /offline	
46	Kongba	Kakching	132	Manipur	0	45	Link Added/LiveLine /offline	
47	Kakching	Churachandpur	132	Manipur	0	38	Link Added/LiveLine /offline	
48	Yaingangpokpi	Hundung	132	Manipur	0	32	Link Added/LiveLine /offline	
49	Kakching	Chandel	132	Manipur	0	25	Link Added/LiveLine /offline	
50	Loktak(NHPC)	Rengpang	132	Manipur	0	47	Link Added/LiveLine /offline	
51	Jiribam	Jiribam	132	Manipur	0	1	Link Added/LiveLine /offline	
52	Ningthoukhong-	Churachandpur	132	Manipur	0	32	Link Added/LiveLine /offline	
53	Mirza(Azara)	Byrnihat	400	CS	0	45	Link Added/LiveLine /offline	
54	Kohima	Wokha	132	Nagaland	0	58	LinkAdded/Live Line/offline	

55	Aizwal(PG)	Zimabawk-II(Zuangtui)	132	Mizoram	0	6.5	Link Added/Live Line/offline	
56	Aizwal(PG)	Zimabawk-I(Luangmual)	132	Mizoram	0	1	LinkAdded/Live Line/offline	
57	Silchar	Pallatana	400	CS	0	248	Link Added/LiveLine /offline	
		Total			1960	1934	(=1933.5≈1934.00)km	

RTU under SCADA Up-gradation Project in NER ANNEXURE- B.13

SI No	SLDC	RTU Location as per LOA	Location where RTU Supplied By Alstom	Status
1	Manipur	132KV Hundung S/S	132KV Hundung S/S	Delivered
2		132kV Rengpang S/S	132kV Rengpang S/S	Delivered
3		132/33 kV Jiribam S/S	132/33 kV Jiribam S/S	Delivered
4		132kV Churachandpur S/S	132kV Churachandpur S/S	Delivered
5		132/33kV Karong S/S	132/33kV Karong S/S	Delivered
6		132/33 kV Yaingangpokpi S/S	132/33 kV Yaingangpokpi S/S	Delivered
7		132/33kV Kakching S/S	132/33kV Kakching S/S	Delivered
8		132/33 kV Chandel S/S	132/33 kV Chandel S/S	Delivered
9		132/33kV Ningthoukhong S/S	132/33kV Ningthoukhong S/S	Delivered
10		132/33kV Yurembam S/S	132/33kV Yurembam S/S	Delivered
11		132/33kV Kongba S/S	132/33kV Kongba S/S	Delivered
1	Tripura	132 kV GSS,79, Tilla	132KV Surjamani Nagar S/S	Delivered
2		132 kV Banduar S/S, Udaipur	Gumti Hydel Power	Delivered
3		132 kV Badharghat S/S	132/66kV Gamaibari S/S	Delivered
4		132 kV Dharmanagar S/S	132kV PK Bari S/S	Delivered
5		132 kV Purba Kanchanbadi S/S	132kV Rabindra Nagar S/S	Delivered
6		Barmura Gas Thermal Project	132kV Mission Tilla S/S	Delivered
7		Rokhia Gas Thermal Project	132kV Budhjanganagar S/S	Delivered
8		Gumti Hydro Electric Project	132/66kV Banduar S/S	Delivered
9		400/132 kV Surjamaninagar S/S	132kV Ambasa S/S	Delivered
10		132 kV Rabindranagar S/S	132kV Dhalabil Grid S/S	Delivered
11		66 kV Belonia S/S	Baramura Gas Thermal Power Station	Delivered
12		66 kV Satchand S/S	132kV Jirania S/S	Delivered
13		66 kV Sabroom S/S	132kV Garotila Grid S/S	Delivered
14		66 kV Bogafa S/S	66kV Ompi S/S	Delivered
15		66 kV Amarpur S/S	66kV Amarpur S/S	Delivered
16		66 kV Ompi S/S	132kV Gournagar S/S	Delivered
17		66 kV Boxanagar S/S	132kV Badharghaht S/S	Delivered
18		132 kV Bodhjunganagar S/S	66kV Satchand S/S	Delivered
19		132 kV Jirania S/S	66kV Sabroom S/S	Delivered
20		132 kV Gamaitilla S/S	66kV Boxanagar S/S	Delivered
21		132 kV Ambassa S/S	66kV Belonia S/S	Delivered
22		132 kV Kamalpur S/S	66kV Bagafa S/S	Delivered
23		132 kV Kailasahar S/S		
24		132 kV Dhallabil S/S		
25		132 kV Ganda Sherra		
1	Meghalaya	Cherrapunjee (S/S)	132KV Nongpyndeng	Delivered
2		Nongstoin (S/S)	132KV Nangalbibra S/S	Delivered
3		Nangalbibra (S/S)	132kV Upper Rongkhon S/S	Delivered
4		Rongkhon (S/S)	132kV Suchen S/S	Delivered
5		Sonapani HEP (GS) changed to lekhsa	132kV Cherra S/S	Delivered
1	Mizoram	Melriat State (#2) 132/33kV	132KV Luangmual S/S	Delivered
2		W. Phaileng 132/33kV	132kV Shimmui S/S	Delivered
3		E. Lungdar 132/33kV	Aizawl Indoor S/S	Delivered
4		Marpara 132/33kV	Zemabawk S/S	Delivered
5		Lungsen 132/33kV		
6		Lawngtlai 132/33kV		

1	Nagaland	Nito Farm(66kV)	132KV Nagarjan S/S	Delivered
2		Purana Bazar (66kV)	132/33kV Ganesh Nagar S/S	Delivered
3		Power House (66kV)	132/33 kV Wokha S/S	Delivered
4		Dimapur (Nagarjan) 132/66kV	66/33 kV Ampoto S/S	Delivered
5		Sovima 66kV	66/33 kV Saksi S/S	Delivered
6		Chumukedima(CMD) 66kV	66/33 kV Longwa S/S	Delivered
7		Ganesh Nagar 66kV	66/33 kV Altenden S/S	Delivered
8		Jalukie 66kV	66 kV Power House	Delivered
9		Peren 66kV	132/33kV Kohima S/S	Delivered
10		Kohima 132kV	132/33kV Kiphire S/S	Delivered
11		Meluri 132kV	132kV Generating S/S	Delivered
12		Kiphire 132kV		
13		LHEP 132kV		
14		Tuensang 66kV		
15		Longleng 132kV		
16		Mokuukchung 132kV		
17		Zuheneboto 66kV		
18		Doyang 66kV		
19		Wokha 132kV		
1	Arunachal Pradesh	DEOMALI	DEOMALI	FAT PENDING
2		KHONSA	JAIRAMPUR	
3		CHANGLANG	PASIGHAT	
4		JAIRAMPUR	ALONG	
5		MIAO	DAPORIJO	
6		NAMSAI	ITANAGAR(S/S)	
7		TEZU	KHUPPI	
8		ROING	BHALUKONG	
9		PASIGHAT	SMS(Naharlagun)(LEKHI)	
10		ALONG		
11		DAPORIJO		
12		ZIRO		
13		ITANAGAR(S/S)		
14		KHUPPI		
15		BHALUKONG		
16		BOMDILA		
17		TAWANG		
18		SEPPA		
19		SAGALI		
20		SMS(Naharlagun)(LEKHI)		
21		NIGLOK		