AGENDA NOTES FOR 18th TCC AND 18th NORTH EASTERN REGIONAL POWER COMMITTEE MEETING

1. MEETING SCHEDULE

SN	Meeting	Date	Time	Venue
1	TCC	10/10/2017	10:00 Hrs	"Hotel Pinewood," Shillong
2	NERPC	11/10/2017	10:30 Hrs	"Hotel Pinewood," Shillong

2. CONFIRMATION OF THE MINUTES OF 17TH TCC MEETING & 17TH NERPC MEETING

The minutes of the 17th TCC held on 4th October, 2016 at Imphal were circulated vide letter no. NERPC/OP/Committee/2016/2437-2512 dated 05.12.2016. Also, the minutes of 17th North Eastern Regional Power Committee (NER Power Committee) meeting was approved by circulation to NERPC Members.

No comments or observations were received from any constituents, the TCC and NER Power Committee may confirm the minutes of above meetings.

2A. PRESENTATION ON REVIEW OF PoC MECHANISM & IMPLEMENTATION OF SAMAST

3. ARRANGEMENT OF AGENDA OF 18th TCC MEETING & 18th NERPC MEETING

SN	Description	Category
1	**ITEMS FOR DISCUSSION**	**A**
2	**ITEMS FOR APPROVAL**	**B**
3	**ITEMS FOR OUTSTANDING DUES**	**C**
4	**ITEMS FOR INFORMATION**	**D**
5	**ITEMS FOR FUNDING FROM PSDF**	**E**

CATEGORY – A: ITEMS FOR DISCUSSION

ITEM NO. A.1 : UPDATE ON NERSS-II(B) & V AWARDED UNDER TBCB – NERPC

The following transmission system associated with North Eastern Region Strengthening Scheme were discussed in 4th, 5th and 6th SCMPSP of NER and was agreed to be implemented through TBCB route in 35rd Empowered Committee held on 14th September 2015.

A. NERSS II Part B

a. Biswanath Chariyali (POWERGRID) – Itanagar 132kV D/c line.

b. 2 nos. 132kV line bays at Itanagar for termination of Biswanath Chariyali (POWERGRID) – Itanagar 132kV D/c line.

c. LILO of one circuit of Biswanath Chariyali (POWERGRID) – Itanagar 132kV D/c line at Gohpur (AEGCL)

d. Silchar (POWERGRID) – Misa (POWERGRID) 400kV D/c Line.

B. NERSS –V

a. Establishment of 400/132kV, 2 X 315MVA S/s at Surajmaninagar

b. Establishment of 400/132kV, 2 X 315MVA S/s at P.K. Bari

c. Surajmaninagar – P.K. Bari 400kV D/C line

d. 2 no. 400kV line bays at Palatana GBPP switchyard for termination of Palatana-Surajmaninagar 400kV D/c line

e. AGTPP (NEEPCO) – P.K.Bari (TSECL) 132kV D/c line with high capacity HTLS conductor

f. 2 no. 132 kV line bays at P.K.Bari (TSECL) S/s for termination of AGTPP (NEEPCO) – P.K.Bari (TSECL) 132kV D/c line.

During the 134th OCC Meeting, Sterlite Power informed that the above projects have been awarded to the firm recently, and latest status would be updated periodically to the forum. He informed that their target to complete the projects would be July, 2019 against the scheduled completion date of July, 2020.

The Sub-Committee appreciated the efforts of Sterlite and agreed in principle as it is benefited for NER States. The same would be put up to next TCC/NERPC meetings for endorsement.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. A.2 : USE OF MULTI-CIRCUIT TOWERS AND MONOPOLES – NERPC

During 134th OCC Meeting, Sterlite informed that there are two lines: one is 400kV D/C Surajmaninagar - P.K. Bari Transmission line which is 92 kms and other is 132kV D/C AGTPP (NEEPCO) – P.K. Bari (TSECL) Transmission line which is 82 kms. These two lines are parallel to each other in forest, so we want to implement Multi circuit Towers in forest area by merging these two lines for approx. 60 kms (M/C Start point to M/C End Point). The 132kV D/C will be kept in lower side and 400kV D/C in the upper side of the tower. The usage of multi circuit towers will reduce the Forest area and there would be a substantial reduction in the number of trees to be felled in Forest Portion. The details are as:-

Description	SMN-P.K. Bari 400kV	NEEPCO-P.K. Bari 132	Total Forest Area details while Laying Single Lines	NEEPCO-SMN-Pkbari 400kV/132kV Multi Circuit Line	Saving in Forest area / Tree Cutting while using Multi Circuit Transmission Line in Forest Portion.
	Line Length:	Line Length:	Line Length:	Line Length:	Line Length:
	Tripura	Tripura	Tripura	Tripura	Tripura
Length of Transmission Line in K.M	92	82	174	115	59
Forest Length in K.M	32.5	41	73.5	34.5	39.0
Line Corridor in Meter	46	27		46	
Forest Area (In hac)	150	111	261	159	102
Total Trees Enumerated on Sample Basis @ 600 Tree/Hectare	89,700	66,420	1,56,120	95,220	60,900
No. of Forest Proposals Submissions	1	1	2	2	

In doing so around 60,900 trees would be saved from felling and there would be a reduction in Forest area required for diversion by 102 Ha.

Use of Monopoles – 132kV D/C Biswanath Chariyalli (PowerGrid) – Itanagar Transmission line is of 69kms, out of which we proposed to install Monopoles in the forest Area of Arunachal Pradesh for approximately 14 kms.

The Sub-Committee appreciated the efforts of Sterlite and agreed in principle as it is benefited for NER States. The same would be put up to next TCC/NERPC meetings for endorsement.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. A.3 : SIGNING OF TRIPARTITE AGREEMENT (TPA) – NTPC/POWERGRID

Ministry of Power, Govt. of India has approved the extension of Payment Security Mechanism of CPSUs beyond Oct'16 on 22.12.2016. All NER States have signed the TPA except Tripura. Hence, Tripura is requested to sign the same at the earliest.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation

ITEM NO. A.4 : NLCPR FUNDING TO NTPC, BONGAIGOAN - NTPC

In order to facilitate speedy development of the NER States, Non-lapsable Central Pool of Resources was constituted in the year 1998-99 after it was passed by Parliament. The broad objective of the Non-lapsable Central Pool of Resources scheme is to ensure speedy development of infrastructure in the North Eastern Region by increasing the flow of budgetary financing for new infrastructure projects/schemes in the Region. As per NLCPR guidelines, Projects of regional/national importance or priority shall be posed for funding under this scheme. Bongaigaon Thermal Power Projects is the only Coal based power generating stations in Kokrajhar District in the state of Assam with an approved capacity of 750 MW(3 X250MW) , committed to supply reliable, stable power to the North Eastern states.

Therefore, NERPC is requested to take up the matter with Ministry of Development of North Eastern Region, to grant NLCPR fund to NTPC Ltd so that the same benefit shall be extended to the NER customers which will reduce their power purchase cost.

However, during the 17th NERPC Meeting a Resolution has been adopted and a Memorandum signed by all the Power Ministers of NER was sent to Honble Union Power Minister, Govt. of India and the outcome is awaited.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.5	**:**	**FINALIZATION OF CONSOLIDATED OPGW NETWORK & INSTALLATION PROJECT - MePTCL**

The OPGW replacement and ownership under the North Eastern Region Unified Load Despatch Communication (ULDC) project on transmission lines owned by the State Utilities should be transferred to the State Utilities after full recovery of charges in line with existing Agreement.

The Agreement signed between the North Eastern States and POWERGRID for implementation of the North Eastern Region Unified Load Despatch Communication (ULDC) project by POWERGRID is due to expire in 2018 (15 years). Certain sections of the OPGW network implemented under ULDC are installed on the intra transmission lines of MePTCL as shown below:

a. 132KV Khliehriat – NEHU single circuit line
b. 132KV NEHU – Umiam Stage i single circuit line
c. 132KV Umiam Stage I – Stage III double circuit line

The communication network installed and owned by POWERGRID during the tenure of the Agreement are to be transferred to the respective States after full recovery of charges, which is for a period of 15 years from the date of commercial operation. After the network is handed over, MePTCL shall provide Powergrid the optical fibres required for ULDC.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.6	**:**	**EARLY COMPLETION OF OPGW BASED COMMUNICATION SYSTEM IN INTRASTATE GRID OF MANIPUR IN THE INTEREST OF NER GRID SECURITY AND SMOOTH POWER SUPPLY MANAGEMENT IN MANIPUR – MSPCL**

Power Grid, in pursuance of 14th NERPC Meeting, established SLDC Manipur with 11 nos. of RTUs in the existing 132 kV sub-stations – nine for State sector and 2 for Central sector - and its commercial operation was declared on 9/11/2016. Due to absence of OPGW connectivity and installation of communication equipment in the aforesaid 11 nos. of nodes, SCADA and voice connectivity from the nodes could not be acquired to the main control center at Yurembam. Currently SLDC at Yurembam is operated with data acquired from few sub-stations through PLCC links only. This has defeated the very purpose of establishment of SLDC for real time scheduling and dispatch of electricity in the intra-state system for ensuring grid security.

During the 15th TCC & 15th NERPC Meeting held on 20th and 21st August, 2015 at Guwahati, the TCC recommended the revision of OPGW connectivity for Manipur from 149 Km to 365 Km and RPC noted and approved it. The investment is to be recovered as per tariff determined by CERC.

PGCIL is implementing the work for the installation of 385 Km. of OPGW including 20 Km for LI-LO on Kongba – Kakching at Thoubal under Quantity Variation Clause. MSPCL has already furnished line parameters and a team from the executing agency has also surveyed the sites for installation of communication equipment. So far MSPCL has not seen any progress in the field nor the executing agency approach MSPCL. As the OPGW and Communication equipment are quite essential for the full functioning of the SLDC, PGCIL may expedite the work at the earliest.

MSPCL has taken up integration of 400 kV sub-station and the remaining 132 kV sub-stations into SLDC Manipur with 5 nos of RTUs and 206 km of OPGW under PSDF funding. This has been incorporated in the scope of "Reliable Communication & Data Acquisition System upto 132 kV Sub-Stations in Manipur (NER)" initiated by the Government of India.

PGCIL is therefore requested to pay special attention and place the latest status of the work including timeline for completion before the board for deliberation.

TCC may kindly deliberate the request of MSPCL in the interest of NER Grid Security and smooth power supply management in Manipur and may advise PGCIL to complete the installation of OPGW at the earliest.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. A.7	**:**	**NO SLIPPAGE OF TIME IN (I) THE COMPLETION OF UPGRADATION OF 2X50 MVA, 132/33KV SUBSTATION AT IMPHAL (PG) TO 400/132KV, 7X105MVA SINGLE PHASE TRANSFORMER AND (II) CONSTRUCTION OF 2 NOS. 400 KV GIS LINE BAYS AT 400/132 KV SILCHAR SUB-STATION FOR TERMINATION OF SILCHAR - IMPHAL (PG) 400 KV D/C LINE – MSPCL**

During the 17th TCC Meeting held on the 4th of October, 2016 at Imphal; MSPCL pointed out that the construction of 400/132 kV Sub-Station at Thoubal in Manipur was targeted for commissioning by the end of 2016 and requested PGCIL to complete the upgradation of 2x50 MVA, 132/33 KV Sub-Station at Imphal (PG) and construction of 2 nos. 400 kV GIS line bays at 400/132 kV Sub-Station Silchar to match with the completion of 3x105 MVA, 400/132 kV Sub-Station at Thoubal, Manipur.

PGCIL informed that LOAs for up-gradation of 132/33 KV Sub-Station at Imphal (PG) to 400/132 KV and 2 nos. 400 kV GIS line bays at 400/132 kV Silchar have already been placed to M/S Sterling & Wilson and M/S ABB respectively. The timeline for completion of Imphal sub-station is January 2018 and Silchar sub-station is December 2017.

Due to compelling circumstances, the construction of 400/132 kV Sub-Station at Thoubal in Manipur along with associated 400 kV D/C line from Imphal (PG) to Thoubal could not be commissioned by the end of 2016 as targeted earlier. Construction of this 400 kV Sub-Station is completed and the associated 400 kV D/C line is expected to be complete by the end of November, 2017. MSPCL is targeting to inaugurate the 400 kV sub-station in December, 2017.

PGCIL is therefore requested to pay special attention to the upgradation of 2x50 MVA, 132/33 KV Sub-Station at Imphal (PG) to 400/132 KV, 7x105 MVA single phase unit (including one spare single phase unit) and the construction of 2 nos. 400 kV GIS line bays at 400/132 kV Sub-Station Silchar for termination of Silchar – Imphal (PG) 400 kV D/C line there is no slippage in the target for completion fixed earlier.

TCC may kindly deliberate the request of MSPCL and may advise PGCIL to closely monitor the progress of works and ensure that there is no slippage in the timeline.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. A.8	**:**	**EVACUATION OF 2ND CIRCUIT OF EXISTING 132kV UDAIPUR - TSECL**

Referring to the minutes of meeting held on 18.07.17 and circulated vide No. CEA/PSPA-II/2017/89/1/585-597, dated- 01.08.2017 regarding arrangement for contruction of 400 KV Bays at Palatana and commissioning of Palatana- S M Nagar D/C line at 400 KV level and proposal for disconnection of Udaipur-Palatana 132 KV line.

It is noted from the minutes of meeting that the existing Udaipur – Palatana 132 KV line would be disconnected from OTPC Gas based power Project at Palatana for termination of 2nd circuit Palatana – S M Nagar 400 KV D/C line charged at 132 KV. In this regard the following observations have been made for kind consideration:

1. Udaipur is a District headquarters and supplying power to other Districts is also through Udaipur 132 KV Substation of TSECL. This substation is presently interconnected with Palatana Power Project and state Grid.

2. The 101 MW Gas Based Power Project at Monarchak owned by NEEPCO is also connected with Udaipur and Rokhia generating Station. The dedicated 132 KV D/C transmission line from Monarchak – S M Nagar is yet to be completed due to compensation issues.

Therefore, the generation from Monarchak Project is currently evacuated through Monarchak- Udaipur – Palatana 132 KV S/C system and Monarchak – Rokhia 132 KV S/C line. In case of disconnection of Palatana – Udaipur line Monarchak generation would not be able to generate more than 60% of its capacity because of transmission lines limitations.If the Udaipur – Palatana line is disconnected at Palatana Project, the Power supply system at Udaipur being main source, the entire 132 KV supply to the south Tripura will be unstable with no redundancy.

3. Further, the Power evauation from Monarchak Project will severely be affected as the entire generation 101 MW of this project will flow towards Rokhia connected with only one 132 KV D/C line through Rokhia – Agartala which will affect the power evacuation from Rokhia Project also.

4. The Palatana Project at times need start up power from the state Grid being mostly supplied from Rokhia Project through Rokhia – Monarcha – Udaipur – Palatana line only. Therefore, in case Udaipur – Palatana is disconnected, Palatana may not be able to draw start up power from Tripura system.

5. It will be extremely difficult to operate state Grid in stability without Udaipur – Palatana link due to the above reasons.

However, after commissioning of 132 KV Monarchak – S M Nagar D/C line (Target March'18) and 132 KV Rokhia – S M Nagar D/C line, the agreed disconnection of Udaipur- Palatana 132 KV line at Palatana can be implemented. Power supply to southern Tripura through Agaratala- Rokhia- Udaipur shall continue to be unstable in view of the fact that there is no redundancy to the point of supply of Udaipur at 132 KV level.

Tripura state system being predominantly operating at 132 KV and 66 KV, in absence of 220 KV between 400 KV and 132 KV level has always been contributing to certain degree of instability in the system.

In view of the above, it is requested for kind consideration to review the decisions of disconnection of Udaipur – Palatana line at Palatana Project for maintaining the stability of state Grid operation apart from maintaining evacuation of full generation of Monarchak 101 MW Project of NEEPCO.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. A.9 : SIGNING OF POWER PURCHASE AGREEMENT (PPA) - NHPC

a. <u>Signing of Power Purchase Agreement (PPA) in respect of Tawang HE Project, Stage – I & II:</u>

Signing of PPA in respect of Tawang HE Project, Stage – I & II is pending with Manipur & Arunachal Pradesh. The matter was discussed in 31st CCM of NERPC in which it was informed by the representative of MSPDCL that matter has been put to Electricity Deptt., Govt. of Manipur & reply of Government is awaited. In this regard, NHPC has also requested Chief Engineer, Electricity Department, Govt. of Manipur vide letter dated 06.01.2017 & subsequent letter dated 13.02.2017 to give their concurrence at the earliest so that formal agreement could be signed. Recently, the matter was also discussed in 32nd CCM of NERPC held at Puri, Odisha in which representative of Manipur informed that matter shall be taken up after the assembly election in March.

In view of above, MSPDCL, Manipur is requested to pursue with their State Government & after getting consent from Government, intimate date & venue for its signing.

b. <u>Signing of Power Purchase Agreement (PPA) in respect of Subansiri Lower HE Project (2000 MW) in Arunachal Pradesh:</u>

Signing of PPA with Department of Power, Govt. of Arunachal Pradesh in respect of Subansiri Lower HE Project (2000 MW) in Arunachal Pradesh is pending since long. Modification sought by Arunachal Pradesh has already been agreed & conveyed vide our letter dated 10.11.2016. Further, quarries of Arunachal Pradesh is suitably addressed & sent vide ED (Itanagar), NHPC's letter dated 23.01.2017. Last reminder sent on 06.02.2017. Reply of Arunachal Pradesh is still awaited.

In view of above; Department of Power, Govt. of Arunachal Pradesh is requested to give their consent at the earliest. PPA of Tawang - I &II will also be signed on similar lines.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.10 : Replacement of old OPGW of ULDC in State Sector Lines - NERPC

The installation of OPGW under Reliable Communication Scheme totaling to 2125 KM Approx (consisting of 966.94 kM replacement under ULDC OPGW links [laid over Central sector TL & State sector TL] + additional of 1158 kM [under Central Sector for redundancy] was discussed in the 17th NERPC Meeting. TCC requested NERPC to constitute a Sub-committee to discuss and finalize the requirement of FO links.

Subsequently, the committee was formed in 5th NETeST Meeting. After detail deliberation during 6th &7th NETeST, the committee recommended for further deliberation of replacement of OLD ULDC OPGW comprising of 151 km in following state sector transmission lines.

SN	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 (MESEB)	Khliehriat (MESEB)-ckt-1	64.094
		Total =	**150.938**

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.11 : LOW VOLTAGE IN TRIPURA / MIZORAM AREA - NERLDC

It is observed that almost regularly during evening peak hours, the 132 kV

system voltage of major stations in Tripura, Mizoram sub system comes down to around 122-124 kV. During this time the MW/MVAR export to Bangladesh is of the order of 140-160MW / 50-70 MVAR. Tripura drawal from grid also remains high. The system voltage in the subsystem comes down to 122-124 kV. Units of AGTPP have tripped on few occasions on account of this low voltage. The low voltage phenomenon is difficult to content despite opening of all reactors available nearby [mainly of 400kV Silchar S/s]. MVAR support from Monarchak, Rokhia, and Baramura power stations remain low or negligible even though there are enough margins as per the capability curve of the machines.

Matter was discussed in the 136th OCC. It was agreed that as a practice, generators are not supposed to provide reactive power support to beneficiaries, rather Tripura should have its own Capacitor banks in place to compensate reactive drawal. The forum requested TSECL to regulate Bangladesh MVAR drawal and conduct meeting at appropriate level in this regard. Member Secretary, NERPC concluded that Tripura should conduct studies and submit DPR of scheme for installation of Capacitor banks at the earliest.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. A.12 : TRIPPING OF OTPC PALLATANA UNITS DUE TO GRID FAILURE - OTPC

OTPC blocks have tripped on a number of occasions during pre-monsoon and during monsoon period due to poor maintenance of the lines. The exact details are as below:

Year	Number of Trippings	Dates
2014	4	19/03/2014, 08/04/2014, 10/05/2014, 25/07/2014
2015	3	25/03/2015, 8/08/2015, 24/09/2015
2016	2	24/02/2016, 16/04/2016
2017	4	24/04/2017, 28/04/2017, 16/05/2017, 08/06/2017

Non-availability seriously affects evacuation of power from Palatana with subsequent unit tripping on over-frequency. Forum is requested to ensure availability of lines at all times for reliable supply of power to NER beneficiaries and reduced damage to plant machineries.

OTPC requests NERPC for advising the concerned agencies to maintain stability in the system by proper maintenance of lines to keep such tripping to a minimum.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.13 : STRENGTHENING OF SOUTHERN PART OF NER GRID - NERLDC

Major loads in Southern Part of NER Grid i.e. South Assam, Tripura (including radial load to Bangladesh), Mizoram & Manipur, are fed through 400/132 kV substation at Silchar (POWERGRID).Total installed capacity of Southern part of NER Grid is 1305 MW which is one third of total installed capacity of NER. Major upcoming corridors are planned or already under operation/execution to major load centers in Southern part of NER Grid like 400 kV Silchar – Misa D/C, 400 kV Silchar – Melriat D/C, 400 kV Silchar – Palatana D/C, 400 kV Silchar – Byrnihat – Bongaigaon, 400 kV Silchar – Azara – Bongaigaon, 400 kV Silchar – Imphal D/C and 400 kV Silchar – P.K.Bari D/C. However in case of outage of 400/132 kV Silchar Sub-station, which is a credible contingency, Southern Part of NER Grid, will be insecure. To mitigate the problem, it is proposed to establish 400 kV Imphal - Melriat D/C and 400 kV Melriat - Palatana D/C (preferably 400 kV Melriat – PK Bari D/C as there would be four 400 KV circuits between Palatana and PK Bari obviating need of any further strengthening) transmission lines. The proposal was agreed in principle in the 127th OCCM

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.14 : STRENGTHENING OF CAPACITY OF KHANDONG BUS AS PER REQUIREMENT - NERLDC

The normal life of 2x25 MW Khandong Power Station will be completed in April, 2019. NEEPCO is in the process of R&M of the Power Station for life extension. Accordingly, order has been placed with M/s CPRI for field study and DPR preparation. Khandong Switchyard is having double Bus with transfer facility and bus conductor is single Zebra and all the jack buses and jumpers are single Panther. During 129th OCC Meeting, NERLDC informed that the calculated SC level after incorporating the future system upgradations is coming around 11 kA (approx.), while the 3-phase SC level is 2000 MVA. The forum recommended bus upgradation at Khandong. NEEPCO informed that prima facie it appears that bus

should be upgraded. Since the structure cannot support Twin Moose, HTLS Zebra would be considered for strengthening bus.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.15 : CONSTRUCTION OF 6KM (APPROX.) TEZU (PG)-TEZU (AP) LINE: NERTS

6KM (Approx.) TEZU (PG)-TEZU (AP) Line is being done by Power department Govt. of Arunachal Pradesh as a deposit work of POWERGRID. Advance for the work already deposited by POWERGRID. Power Department, Govt. of Arunachal Pradesh may expedite the construction of the line for utmost benefits of drawl of Power from 132 KV Roing-Tezu line.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.16 : SAMAST IMPLEMENTATION IN NER - NERLDC

A robust mechanism known as **SAMAST** i.e. SCHEDULING (S), ACCOUNTING (A), METERING (M), AND (A), SETTLEMENT OF (S) TRANSACTIONS (T) IN ELECTRCITY should be in place in all the States across the Country. The implementation would include Metering at intra-State level, AMR scheme to fetch data to SLDC, intra-State scheduling, Open Access web portal, Accounting, Settlement system etc. This would pave way for intra-State ABT implementation. The States should proceed with the activities as listed in SAMAST report and apply for PSDF funding.

NERPC and NERLDC are providing support to the States on this scheme. A SAMAST Group has already been formed comprising of NERLDC, NERPC and all States are to join in the Group for implementation of SAMAST. Matter is being reviewed in OCC forum of NERPC. During the 136th OCC meeting, it was decided that a uniform DPR would be prepared by NERPC Secretariat (through Core Group Members of NERPC, NERLDC, POWERGRID, Assam & Meghalaya) and this would act as a model to the remaining States of NER and only the quantities have to be intimated by the States. The Combined DPRs of 2-3 NER States would be sent by NERPC to NPC, CEA and NLDC so that the work scheme can be completed on

time. The OCC requested NERPC to get it endorse during the 18th TCC/NERPC Meetings.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.17 : PROPOSED SCHEME FOR RELIEVED CONGESTION IN AGIA SUS-STATION OF ASSAM- AEGCL

The 220kv lines emanating from Agia GSS of AEGCL are being made to carry high quantum of load to the extent of more than the optimal Iimit due to additional loading of 132kv Agia - Mendipather line (50Mw). On the other hand no tariff benefit accrues to AEGCL due to the conditions imposed by PoC regulations. AEGCL desires that a 220kV GSS either in West Garo Hills district or in the East Garo Hills district of Meghalaya should be set up by CTU and this s/s may be connected through construction of a new 220kV double circuit transmission Iine by PGCIL from Bongaigaon (PG) GSS. Later on this GSS may be connected to other PGCIL S/S in Meghalaya or elsewhere. This 220kV GSS will not only relieve the AEGCL transmission lines from congestion but will also enhance the reliability and stability of the system in the western parts of Meghalaya. Letter given by AEGCL enclosed at **Annexure-A.17**.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.18 : PROPOSED SCHEME FOR LILO OF 132kV KAHILIPARA – UMTRU D/C AT KILLING S/S- AEGCL

To relieve the ICTs at Sarusajai GSS of AEGCL, and also to increase the stability of power supply in greater Guwahati and its adjoining areas, AEGCL desires that the 132kV Kahilipara - Umtru double circuit lines be LILO connected at Killing GSS of MeECL. This reconfiguration of the network will also enhance the stability of power supply in Umtru and Byrnihat areas of Meghalaya.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. A.19 : CONSTRAINTS IN GRID OPERATION BY REAL TIME SYSTEM OPERATORS DUE TO TELEMETRY ISSUES AND NON-AVAILABILITY OF DEDICATED COMMUNICATION

Dedicated voice communication and availability of the same is one of the key requirements for efficient grid management which is a collective responsibility.

Further, most of the POWERGRID sub stations are connected through only one dedicated voice communication. Minimum two nos. of dedicated voice communication links need to be established for each substations and 4 nos. of dedicated voice communication links for important 400kV substations, HVDC station and SLDCs.

No dedicated Link:

1. Imphal, Aizawl and Itanagar SLDCs do not have VOIP.
2. Palatana, Monarchak Power Stations
3. 400 KV Silchar, Byrnihat, Azara S/S,
4. Surjamaninagar & Salakati S/S with international connectivity

Malfunctioning of links:

1. Kathalguri, Ranganadi, Itanagar, Kolasib, Kohima, Jiribam

Telemetry related issues:

1. **ASSAM:** around 20-23 stations are reporting out of 62 nos. stations covered by ULDC. Though telemetry from all identified locations are desired, immediately data from the following stations of Assam are required

   1. Boko 2. Agia 3. Mariani 4. Namarup 5. Tinsukhia 6. BNC 7. Dullavchara 8. Bokajan 9. Azara 10. Badarpur

2. **Mizoram**: Kolasib
3. **Nagaland**: Likimaro HEP
4. **NEEPCO**: AGBPP, RHEP, Monarchak and Tuirial
5. **POWERGRID**: 400 KV Balipara: Important parameters related to S/s viz Bus[400, 220 and 132kV] related data and power flow in 220 kV Sonabil feeder are still not reporting. As regional system frequency reference is taken from Balipara S/s, complete restoration of Telemetry related to Balipara S/s is crucial. Melriat, Roing and Tezu data are not reporting.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

CATEGORY – B : ITEMS FOR APPROVAL

ITEM NO. B.1 : PROTECTION WORK AT 8 LOCATIONS IN 400kV D/C PALATANA – SILCHAR LINE - NETC

Palatana-Bongaigaon 400 kV D/C transmission system was developed for evacuation of power from 726.6 MW capacity, Gas Based Combined Cycle Power Plant (GBCCPP) of ONGC Tripura Power Company (OTPC) situated at Palatana, Tripura. The length of transmission system is 663 Km. 5 assets of the transmission system were commissioned in phases from 2012 to 2015. Palatana-Silchar 400 kV D/C transmission line was commissioned in the month of September, 2012 and is passing through 73 KMs of hilly forest stretch in the state of Tripura. During construction, soil cutting/benching in this hilly stretch was minimized by using uneven leg extensions for better stability and economy.

During last year, this region experienced frequent earthquakes of high intensity and heavy monsoon with incessant rains which are not normal phenomenon. During earthquake the horizontal seismic forces have created voids in soil strata due to which water seepage caused sinking of land mass in this region. There were several road blockage and land-slides experienced during the last year and the subject transmission line corridor also got affected. Due to foregoing, 8 towers location of 400 kV D/C Palatana-Silchar transmission lines got badly affected which is beyond the control of NETC. Emergency temporary measures were taken in few of the vulnerable locations at that time by POWERGRID (Project Management Consultant for NETC for this project) to continue the power evacuation. As these emergency measures are temporary in nature therefore immediate steps shall have to be taken for protection of all these 8 nos. towers for long time safety and security of the subject transmission line.

The issue was deliberated during the 127th OCC Meeting and the estimated expenditure was intimated to be Rs. 70.77 Lakhs to build protection wall at 8 locations on immediate basis. Booking of such expenditure is proposed to be met through PoC mechanism. The members of the OCC agreed in principle to the proposal and recommended for approval of 18thTCC/NERPC.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. B.2 : DIVERSION OF 400 KV D/C SILCHAR–BYRNIHAT-AZARA TRANSMISSION LINE BETWEEN LOCATION NO. 573 TO 580 (2.33 KM) TO FACILITATE CONSTRUCTION OF TETELIA – BYRNIHAT RAILWAY LINE OF NORTHEAST FRONTIER RAILWAY (NFR) - NETC

The 400 kV D/C Silchar – Byrnihat-Azara line is the part of 400 kV Palatana Transmission System owned by NETC presently being maintained by PGCIL. Silchar – Byrnihat Ckt & Silchar – Azara Ckt of the said line were commissioned on 01.03.2013 and on 27.07.2014 respectively.

However, now to facilitate construction of Tetelia – Byrnihat Railway line of NFR, a section of the line to the tune of 2.33km involving 6 (six) tower locations is to be diverted through a new alignment. During construction of the line in the year 2012, NFR had claimed that both the line and Railway corridor in this section are overlapping each other and hence the line is to be shifted prior to the construction of the Railway line. The permission for possession of land was granted to NFR as per notification u/s 4 (1) in July 2010 by Addll. Dy. Commissioner, Kamrup (Metro), Guwahati.

NETC in the capacity of transmission systems developer finalized the route alignment during 2005-06 after obtaining necessary approvals such as section 68 & section 164 under Electricity Act 2003. Though it was not mandatory, NETC obtained approval from Revenue Authorities of Sonapur during December 2010 much before taking up the construction activity in the Tetelia-Byrnihat section by NFR and completed the work by April 2012. Since then, series of meetings were held between NETC & NFR in presence of representative of Govt. of Assam. But till August, 2016, no conclusion could be arrived with regard to which party (NETC/NFR) would bear the expenses of the said diversion. Finally, in the meeting convened by Special Secretary (Power) GoI on 26.09.2016, NETC had issued the letter of acceptance for diversion of the line as per their directive. Accordingly, NETC has placed the LOA for diversion of the line with a target to complete by December, 2017. On behalf of NETC, PGCIL is executing the job under Project Management Consultancy (PMC). The total cost of this diversion work will be around Rs. 14.0 Cr. NETC propose for booking of this expenditure under PoC Mechanism as the line has to be diverted in the interest of the Nation, in general and for the State of Meghalaya in particular.

The issue was deliberated in 134th OCC Meeting and the members agreed to the proposal of NETC and recommended for approval of TCC and NERPC.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. B.3 : FIBER OPTIC COMMUNICATION SCHEME (ADDITIONAL) UNDER CENTRAL SECTOR FOR NER - NERPC

As per 5th NETeST meeting held on 16th November 2016, requirement of Tezu – Namsai (96 km) fiber optic link was agreed to provide connectivity at Namsai 132kV S/S with existing central sector network. Accordingly, subject link was approved for inclusion in already approved Fiber Optic communication Scheme (Additional) under central sector for North Eastern Region.

After inclusion of subject link total kms for subject scheme is 851 kms & the estimated cost of the scheme shall be Rs 22.5 crs.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO. B.4 : INSTALATION OF AMR IN NER - NERPC.

During 24th CC Meeting it was agreed that AMR (Automated meter reading) scheme will be implemented in NER expeditiously and cost of same will be recovered by POWERGRID through tariff. POWERGRID informed that the tentative cost of AMR is Rs. 1.72 Crore only.

Subsequently, during 15th TCC & 15th NERPC Meeting all constituents have agreed for installation of AMR by incorporating the comments on technical specification by NERLDC and accordingly, TCC and NERPC accorded approval.

However, due to various issues like change of specification, addition of backup RLDC at Guwahati, change of meter data processing software etc. the revised cost became Rs. 4, 38, 21,500.00 (Rupees four crore thirty eight lakhs twenty one thousand five hundred only).

During 27th Metering Meeting (MOM Item No. 6) the members opined the requirement of AMR project in NER at the earliest and agreed to the revised cost estimate of Rs. 4, 38, 21,500.00 (Rupees four crore thirty eight lakhs twenty one thousand five hundred only) in-principle. POWERGRID NERTS was advised to proceed with tendering activity to avoid further delay. It was agreed that the matter would also be put up to next TCC/RPC meeting scheduled shortly for formal approval.

Regarding cost recovery mechanism, it was agreed that cost would be shared by the NER beneficiaries in proportion to weighted average entitlement as per monthly REA of March, 2017 issued by NERPC secretariat. It was agreed that this would also be formally approved by TCC/NERPC in next meeting.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO. B.5 : SPARING OF REDUNDANT TOWER OF 220KV MISA-MARIANI-KATHALGURI LINE TO AEGCL - NERPC.

During OCC Meeting AEGCL requested the forum to allow utilization of 5 nos. of 400kV towers of PGCIL which will become redundant upon shifting of existing 220KV LILO of Misa – Kathalguri line from 220/132kV Mariani (AEGCL) SS to 220kV Mariani (PGCIL) SS which will be upgraded to 400KV Station under NERSS-VI Scheme as approved in 5th SCM and 15th NERPC Meeting. The utilization of redundant towers by AEGCL will be done for new 220kV D/C connectivity between Mariani (AEGCL) and Mariani (PGCIL) SS.

The 135th OCC forum agreed to the proposal of AEGCL and recommended for approval of 18th TCC and 18th NERPC Meeting.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO. B.6 : INSTALLATION OF PROTECTION DATABASE MANAGEMENT SYSTEM (PDMS) IN NER - NERPC.

The issue of having the Data Based Management System was conceived during the 104th OCC & 28th PCC Meetings of NERPC on December, 2014. Since then, NERPC has been followed up in various OCC meetings and it was felt that the Project is very essential for analyzing the root cause of trippings, corrective measures, relay settings etc.

NPC, CEA advised NERPC to form a sub-group to finalize the DPR in respect of PDMS. According, NERPC has constituted the sub-group comprising of NERPC, NERLDC, POWERGRID, NEEPCO & MeECL. During the 136th OCC meeting, the number of licensees have been finalized and the DPR has been completed. The Total cost of DPR is Rs. 26.74 Crores.

The forum unanimously concurred upon the urgent requirement of the system and referred the matter to TCC/RPC.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO. B.7 : REVIEW OF FRAMEWORK OF SHARING OF INTER-STATE TRANSMISSION CHARGES AND LOSSES - POINT OF CONNECTION (POC) METHODOLOGY AND OTHER MATTERS

CERC vide office order dated 10.7.2017 has constituted a task force under the Chairmanship of Shri A.S.Bakshi, Member, CERC to undertake review of existing framework of sharing of interstate transmission charges and losses and recommend modifications, if any.

Concerns/suggestions/views were invited from the stakeholders and interested parties, on the existing framework of sharing of transmission charges (Point of Connection charges) and suggest alternatives supported by justification and relevant data.

The matter was discussed in 33rd Commercial Committee Meeting of NERPC held on 25th August 2017 at Sonapur, Assam and following were agreed:

1. Need for simplification of the method: Present Average Participation (AP)/ Marginal Participation (MP) method needs to be simplified as the present methodology is not clear. The detail calculations should be transparent and made available to all the DICs.
2. Major portion of YTC (about 80-85%) should be recovered as uniform charges (may be part of reliability charges) and should be applied to both generation (in case of ISGS it will be passed to the beneficiaries) and drawal entities.
3. 15-20% may be made sensitive to distance and direction.
4. It was deliberated that in Nordic system where Point of Connection tariff is in place, 15-20 % is variable element which is linked to marginal loss factor at each node which is transparent and scientific based on studies.
5. Tripura representative suggested National Postage Stamp which might be largely achieved with 80-85% uniform charge.
6. Meghalaya representative pointed out that quarterly variation in charges create a jerk as the States can file petition to SERC only on Annual basis. It was requested to have fixed rate throughout the year and have adjustment bill at the year end.
7. It was felt that HVDC charges should be socialized.

It was agreed in the meeting that the issue would be discussed in the ensuing TCC/NERPC meetings which is likely to be held in October 2017 for a resolution and then the resolution of NERPC would be forwarded by NERPC Secretariat to CERC and MOP.

In the meantime, NERPC Secretariat has forwarded its views to CERC which is attached at **Annexure – B.7**

Put up for approval.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. B.8 : PROCUREMENT OF ERS FOR NER - NERPC

PSDF Secretariat (NLDC, New Delhi) vide. NLDC-PSDF/NPC-CEA/2016-17/60 dtd. 21st April 2016 has intimated that submission and approval of the schemes is governed in accordance with the guidelines for disbursement of funds from PSDF approved by MoP on 18.9.2014. Guidelines are available on http://psdfindia.in/. The schemes have to be submitted as per formats prescribed in guidelines.

In 122nd OCCM, DGM(AM), NERTS requested NERPC to write to ED,NERTS in this regard, so that DPR may be prepared in earnest. NERPC informed that letter has already been sent to ED, NERTS for necessary action.

During 124th OCCM, NERTS stated that detailed clarification is required with regard to the following:

1. Status of funding from PSDF
2. Ownership of Asset and location of storage.
3. Signing authority for consultancy agreement.

In 126th OCCM, NERTS informed that the signing authority would be owner of the asset, and also that consultancy charges may be waived off in case signing authority is NERPC. OCC forum mandated NERPC to be the signing authority and recommended that the matter be put up in the next TCC/RPC meeting for approval.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO. B.9 : TRANSMISSION LINE SURGE ARRESTER – AN ALTERNATIVE TO ARREST FREQUENT TRIPPING OF 132KV LINES IN NER DURING MONSOON - NERPC

In North Eastern Region around 70% Tripping of Lines are mainly due lightening. Again more than 80% Lightning related tripping are in 132kV Lines. In order to arrest tripping of 132kV Transmission lines of NER during lightning; installation of TLSA was explored. The issue was deliberated in 127th OCC Meeting and POWERGRID gave a presentation on Transmission Line Surge Arrestor and stated

that despite of counterpoise earthing and additional shield wire earthing of POWERGRID's Transmission Line in NER there are no. of Tripping of 132kV Lines during lightening.

POWERGRID informed that they are going to install TLSA in 132kV Khandong - Khliehriat Line # 1, 132kV Badarpur - Khliehriat Line and 132kV Aizawl – Kumarghat Line on experimental basis and observe the performance of the Lines during lightening and if the performance improves NER should go for installation of TLSA in 132kV Lines. So far as cost is concerned, POWERGRID will recover from PoC Mechanism and States may explore for funding from PSDF for the same work. The OCC forum agreed and requested NERPC to put up in next TCC/RPC Meetings.

Members may like to discuss for In-principle approval.

TCC Deliberation :
NERPC Deliberation

ITEM NO. B.10 : RECONDUCTORING OF 132kV KOPILI – KHANDONG LINE # I WITH HTLS CONDUCTOR – NERLDC/NERTS

The transformation capacity at Kopili is being enhanced to 2x160 MVA, 220/132kV after installation of 2nd ICT which is under progress. However, there are two 132 kV circuits between Kopili and Khandong HEP. The Circuit # 2 is strung with ACSR Zebra conductor but, the Old Circuit # 1 is strung with ACSR Panther conductor. Thus capacity of Circuit # 1 will limit the evacuation of power between Kopili and Khandong in the event of outage of Circuit # 2. Thus, to have (N-1) compliance between Kopili and Khandong HEP, the existing ACSR Panther Conductor needs to be replaced with HTLS Panther equivalent conductor.

The issue was deliberated in 127th OCC Meeting and the requirement of re-conductoring was agreed by the members. The forums recommended for approval of TCC and subsequently, deliberate the issue in next SCM for CEA approval.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO. B.11 : APPROVAL OF RELIABLE COMMUNICATION SCHEME - CENTRAL SECTOR PART - NERPC

The installation of OPGW under Reliable Communication Scheme totaling to 2125 KM Approx (consisting of 966.94 kM replacement under ULDC OPGW links [laid over Central sector TL & State sector TL] + additional of 1158 kM [under Central

Sector for redundancy] was discussed in the 17th NERPC Meeting. TCC requested NERPC to constitute a Sub-committee to discuss and finalize the requirement of FO links.

Subsequently, the committee was formed in 5th NETeST Meeting. After detail deliberation during 6th &7th NETeST, the committee recommended following for approval:

1. Installation of additional 1158 km of 24F OPGW along with communication equipments as a **Reliable Communication Scheme under Central Sector for North-Eastern Region**
2. Replacement ULDC OPGW in Central Sector TLs comprising 816 Km of OPGW alongwith communication equipment **under Reliable Communication Scheme under Central Sector for North-Eastern Region**. The List of Central Sector Links are as below:

SN	FROM	TO	KM RL
1	NEHU	Shillong UNDER GROUND FO	6.23
2	Khliehriat (MESEB)	Khliehriat (PGCIL)	7.791
3	Khliehriat	Khandong(PGCIL)	40.99
4	Khandong(PGCIL)	Koplili (PGCIL)	11.191
5	Misa(PGCIL)	Koplili (PGCIL)	73.186
6	Misa(PGCIL)	Balipara(PGCIL)	94.046
7	Misa(PGCIL)	Dimapur(PGCIL)	119.192
8	Badarpur(PGCIL)	Khliehriat(PGCIL)	73.183
09	Badarpur(PGCIL)	Kumarghat(PGCIL)	117.519
10	Agartala Gas(PGCIL)	Kumarghat(PGCIL)	99.817
11	Agartala (PGCIL)	Agartala Gas(PGCIL)	7.416
12	Dimapur (PGCIL)	Kohima(PGCIL)	59.8
13	Kohima(PGCIL)	Imphal(PGCIL)	105.64
Sub Total SC&C			**816.00**

Cost of implementation of 1974Km (1158Km + 816Km) of 24F OPGW alongwith communication equipments is estimated to be Rs. 75Crs.

However, actual cost shall be discovered only after bidding process and implementation of the project. Tender activities have also been initiated based on DPR.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO B.12 : VOIP EXCHANGE PROJECT IN NERLDC & SLDCS OF NER - NERPC

It may be noted that VOIP exchange facility is under installation by M/s Orange under supervision of POWERGRID in NER for NERLDC & different SLDCs. Originally it was proposed to be booked under MW Vacation Project by POWERGRID. But MW vacation Project has only Assam & Central sector. During 6th NETeST, it was opined that "as VOIP Exchange pertains to all SLDCs specifically separately, POWERGRID may explore cost booking in line with philosophy adopted for SLDC Up gradation/Expansion project" in NER where specific head of each state SLDC is available.

It is proposed to book the cost under SLDC Project/NER FO Expansion project.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO B.13 : FINALIZATION OF LOCATIONS OF PMU TO BE PLACED UNDER PHASE-2 URTDSM PROJECT THROUGH SUB-COMMITTEE & STUDY GROUP-NERPC

During deliberation in 6th NETeST MOM, the matter was referred to next Study group meeting. Before commencement of study group meeting, states/utilities was to forward their comments to the respective study group members & then to NERPC. NERLDC (POSOCO) has forwarded requirement of PMUs to NERTS (LD&C) & RPC during 7th NETeST meeting and the same is enclosed in **Annexure – B.13**.

Put up for approval

TCC Deliberation :
NERPC Deliberation

CATEGORY – C: ITEMS FOR OUTSTANDING DUES

ITEM NO. C.1 : OUTSTANDING DUES OF NHPC

Outstanding dues of NHPC for more than 60 days:

(i) **MeECL, Meghalaya**: - In response to our various letters & efforts, CAO, MeECL, Meghalaya intimated vide their letter dated 31.01.2017 that **"we agree to your proposal of payment the principal in installment latest by August, 2017".** As agreed by MeECL, first installment of **₹ 3 Crores** was to be released by MeECL during February, 2017 but till now, we have not received any installment of ₹ 3 Crores in spite of our regular follow up.

As on date, an amount of ₹**32.42 Crs** (Including surcharge of ₹**10.90 Crs** up to 28.02.2017) is payable by MeECL, Meghalaya**.**

In view of above, MeECL/MePDCL, Meghalaya is requested to release first two installments of ₹ 3 Crores each immediately and balance installments be also released in time so that entire outstanding dues shall be cleared by August/September, 2017 as per their commitment.

(ii) **MSPDCL, Manipur:** - An amount of ₹**15.27 Crores** (including surcharge of ₹ **0.60 Crores** up to 28.02.2017) is due for payment from MSPDCL. Out of which principal amount of **₹ 8.78 Crores** is outstanding for more than 60 days. Recently, the matter of outstanding dues was discussed in 32nd CCM of NERPC & it is assured by the representative of MSPDCL that outstanding dues of more than 60 days will be cleared after Election.

So, MSPDCL, Manipur is requested to clear their outstanding dues of more than 60 days as per their commitment on priority.

Opening/maintaining of Letter of Credit (LC):

In spite of our regular follow up, Arunachal Pradesh & Manipur has not provided LC of requisite amount till now. Recently, the matter was also discussed in 32nd CCM of NERPC & it was assured by MSPDCL that LC of requisite amount of **₹ 5.23 Crores** will be opened after Election. In this regard, last reminder sent to MSPDCL, Manipur and Deptt. of Power, Govt. of Arunachal Pradesh on 03.03.2017 & 09.03.207 respectively. Details of LC's are as under:-

Name of beneficiary	Requisite amount	Validity already expired on
Arunachal Pradesh	₹ 0.84 Crs	31.03.2016
Manipur	₹ 5.23 Crs	15.09.2016

Department of Power, Govt. of Arunachal Pradesh & MSPDCL, Manipur are requested to furnish the "Letter of Credit (LC)" of requisite amount immediately with validity up to 31.03.2018 on top priority. All other beneficiaries are also requested to open the LC of requisite amount up to the period 31.03.2018.

ITEM NO. C.2 : OUTSTANDING DUES OF OTPC

The current total outstanding dues of OTPC against the NER beneficiary states (as on 20-09-2017) are as under:

(Amount in Rs Crores)

Sl.No.	Beneficiary	Outstanding Dues including Supplementary Bill (>60 Days)	Total Outstanding including Supplementary Bill
1	Arunachal Pradesh	0.00	5.34
2	Assam	70.55	131.47
3	Manipur	20.16	30.93
4	Meghalaya	43.53	61.62
5	Mizoram	0.00	5.55
6	Nagaland	3.12	5.57
7	Tripura	91.79	140.81
	Total	**229.15**	**381.30**

The total outstanding dues as on 20-09-2017 are Rs 381.30 Crores out of which outstanding beyond 60 days is Rs 229.15 Crores. Constituents are requested to clear at least the outstanding dues over 60 days, at the earliest.

Status of Payment Security Mechanism of the beneficiaries required against monthly energy billing as per Power Purchase Agreement and CERC regulations – OTPC

S.No.	Beneficiary	Letter of Credit (LC) required as per PPA (Rs Crore)	LC amount status (Rs Crore)	Valid Upto	Remarks

1	Arunachal Pradesh	11.62	11.62	31-Mar-2016	Kindly renew the LC and park sufficient funds with bank for LC
2	Assam	40	40	28-Apr-2018	LC is in place
3	Manipur	15.02	3.7	15-Sept-2016	Kindly renew the LC
4	Meghalaya	29.78	-	-	Meghalaya has never provided the LC even after continuous persuasion
5	Mizoram	7.5	7.5	6-May-2017	Kindly renew the LC
6	Nagaland	9.46	9.46	20-Mar-2018	LC is in place
7	Tripura	46.53	18	19-Mar-2018	LC is in place

Beneficiaries are requested to enhance and renew the LC amount as per the PPA at the earliest.

ITEM NO. C.3 : OUTSTANDING DUES OF REGULATORY ACCOUNTS

Deviation/Reactive charge outstanding:

From the outstanding status, it can be seen that Assam (Rs. 26.14 Crores), Ar. Pradesh (Rs. 2.96 Crores), Manipur (Rs.1.83 Crores) and Mizoram (Rs. 1.45 Crores) are major defaulters.

Ar. Pradesh, Manipur and Mizoram have outstanding of more than 13 weeks (90 days).

From the Reactive Outstanding Status, it can be seen that Ar. Pradesh (Rs. 22.44 Lacs), Assam (Rs. 16.28 Lacs) Manipur (Rs. 1.2 Lacs) Mizoram (Rs. 5.7 Lacs) and Tripura (Rs. 12.38 Lacs) are defaulters.

CERC in order dated 02.09.2015 in Petition No: 142/MP/2012 with I.A. 7/2013 has stipulated denial of Open Access in case of default in payment of UI/deviation charges, transmission charges, reactive energy charges, congestion charges and RLDC fees and charges for more than 90 days.

All are requested to take note of above and clear outstanding to avoid regulatory measures.

Opening of LC against Deviation Charges Liability:

As per DSM charges and related matters Regulations, 2014 of CERC, following are the LC amounts pertaining to NER entities and they are required to open LC accordingly:

NER entities	LC Amt (Rs. in Lakhs)
Ar. Pradesh	95.81
Assam	562.00
Manipur	42.13
Meghalaya	14.00
Mizoram	58.43
Nagaland	54.72
Tripura	199.00

Till date only Nagaland has opened LC. However, confirmation from Bank is yet to be received.

It is requested to open LC to adhere to CERC stipulation.

ITEM NO. C.4 : OUTSTANDING DUES OF NERTS, POWERGRID

The details of outstanding dues for more than 60 days as on 11.09.2017 in respect of defaulting beneficiaries of POWERGRID are as under:

Name of the DIC	*30-60 days*	60-90 days	>90 days	Total
Assam	33.20	35.29	11.48	79.98
Meghalaya	6.23	6.09	5.25	17.57
Mizoram	3.83	0.57		4.41
Ar. Pradesh	3.04	3.52		6.55
Nagaland	2.95			2.95
Manipur	3.96	3.72	3	15.23

The concerned utilities may liquidate the outstanding dues on priority and update the status.

LC requirement against PoC billing as per Cl. No. 3.6 of BCD (Billing Collection and Disbursement) Procedures of CERC order no. L-1/44/2010-CERC, Dtd. 29.04.11

REQUIREMENT AND STATUS OF LC AS ON DATE (11.09.17) OF NER BENEFICIARIES

(All Figures in Rs. Lakh)

Sl	Beneficiary	Required LC Amount	Due date of enhancement and renewal (for one year)	Value of Existing LC
1	Ar. Pradesh	321.46	31.03.16	252.00
2	AEGCL (Assam)	4217.83	31.05.18	3217.89
3	Manipur	393.05	15.09.16	213.13
4	MeECL	700.00	04.10.17	300.00
5	Mizoram	400.94	04.05.17	269.59
6	Nagaland	437.73	21.03.18	459.62
7	Tripura	416.86	14.02.18	271.00

- DICs are requested to renew & enhanced the LC as per requirement.
- **AEGCL, MeECL** may be impressed upon to enhance LC of requisite amount immediately.
- **Arunachal Pradesh, Manipur, Mizoram may be impressed upon to renew as well as enhance the LC as per requirement immediately.**

ITEM NO. C.5 : OUTSTANDING DUES OF NEEPCO

Non-payment of dues by MePDCL to NEEPCO against purchase of energy.

MePDCL's payment record over the past few years has been dismal compelling NEEPCO to regulate supply of power from its stations on several occasions, the last being during April 2016 to December 2016. The last regulation was withdrawn on 23rd December 2016 in view of the ensuing festival season as well as MEPDCL's assurance to immediately pay Rs. 325.00 crore and to finalize a timeline for liquidating the remaining dues as per a mutually agreed one time settlement scheme which envisaged the reciprocal waiver of 60 % of the accumulated late payment surcharge by NEEPCO.

Although Rs. 325.00 crore was paid immediately as committed, MePDCL once again fell back on its assurance to liquidate the balance under the one time settlement scheme. Further, MePDCL also stopped making payments against the regular monthly energy bills as well as other bills raised on them since December 2016. As a result the principal dues payable by MePDCL has once again escalated to an amount of Rs. 153.86 crore as on 22.09.2017. In addition there is an accrued late payment surcharge of Rs. 273.59 crore which makes **the total dues outstanding as on 22.09.2017 stand at Rs. 427.45 crore.**

It is pertinent to mention here that at a meeting held at the Ministry of Power, Government of India, on 4th August 2017 to review the status of outstanding dues of hydro CPSUs, the Joint Secretary (Hydro), Ministry of Power, Government of India suggested to the representative of the Government of Meghalaya to pay Rs. 30.00 crore to NEEPCO within 20th August 2017 and the remaining dues at the rate of Rs. 30.00 crore per month over and above the current monthly dues so that the old outstanding dues can be paid by October end. However, it is regretted that Meghalaya has so far failed to act on this suggestion.

It is matter of serious concern to NEEPCO that despite persuasion at all levels, neither MePDCL nor the Government of Meghalaya have so far responded. It should also be matter of serious concern to this forum that this huge quantum of unrealized dues may jeopardize the operation and maintenance of NEEPCO's power stations.

In view of the gravity of the situation elucidated above, this forum is requested to kindly deliberate on this issue with all seriousness and impress upon MePDCL to clear the dues in totality immediately in the overall interest of the health of the power sector of this region.

In this context it is also mentioned that all other beneficiaries of NEEPCO power stations have either cleared most of the past dues or are actively pursuing measures towards that end.

CATEGORY – D: ITEMS FOR INFORMATION

ITEM NO. D.1 : COMMISSIONING SCHEDULE OF ONGOING PROJECTS IN NER - NERPC

The Sub-committee also reviewed the status of commissioning of various ongoing projects in NER during OCC Meetings. The status as on last 136th OCC Meeting held on 13.09.2017 is as below:

GENERATION

SN	AGENCY	PROJECT	COMMISSIONING SCHEDULE
1	NHPC	Lower Subansiri	12th Plan
2	NEEPCO	Kameng HEP	Unit I & II: March 2018
3	NEEPCO	Tuirial HEP	Oct-Nov, 2017
4	NEEPCO	Pare HEP	March, 2018
6	NTPC	Bongaigaon TPS	Unit II: 31.10.2017
7	NEEPCO	Tawang HEP	13th Plan

TRANSMISSION

SN	AGENCY	PROJECT	COMMISSIONING SCHEDULE
1	NTPC	400/220kV, 315 MVA ICT-1 at Bongaigaon	30.11.2017
2	NERTS	400 kV D/C Silchar - Melriat line	31.12.2017
	AEGCL	220kV Rangia - Salakati	31.03.2018
	TSECL	132kV Monarchak – Surjamaninagar D/C	31.03.2018
	NERTS	400kV D/C Balipara – Kameng	To be matched with Kameng HEP.
	NERTS	400 kV Silchar – Misa D/C	31.03.2019
	NERTS	220 kV, 1x31.5 MVAR Bus Reactor at Mokokchung	31.12.2017
	MSPCL	PLCC Panels at Loktak end of Loktak – Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	31.05.2018
	Ar. Pradesh	LILO portion of 132kV Ranganadi – Nirjuli(diversion work) at Lekhi	31.12.2017

This is for Kind information

ITEM NO. D.2 : REVISED (FINAL) LIST OF NER FO EXPANSION

The revised list, after considering changes proposed by Manipur, Tripura, Nagaland, AP & CS as per site requirement, of on-going NER FO project is attached in **Annexure – D.2**. NER FOR Expansion along with details of STM-16/4 network.

This is for Kind information

ITEM NO. D.3 : STATUS OF INSTALLATION/UPGRADATION OF SLDCs IN NER - NERPC

SN	Utility	Status as informed in 7th NETeST	Status as informed in 6th NETeST	Target Completion
UPGRADATION OF SLDCs				
1	Assam	Completed.	EMS Tuning left. Supply of DG set by left.	Completed. DG set-Target Nov17.
2	Tripura	Completed. Space for DG set is to be assured by TSECL. Further, AMC issue to be addressed by TSECL in line with agreement & other SLDCs	EMS tuning completed. Some site requires 48V DC supply and some require civil work.	Completed. DG set-Target Nov17.
3	Meghalaya	Completed.	EMS SAT Competed. DG set to be installed later.	Completed. DG set-Target Nov17.
4	NERLDC	Completed.	Completed.	Completed. DG set-Target Nov17.
5	Manipur	Completed.	EMS tuning completed. DG set to be installed later.	Completed. DG set-Target Nov17.
6	Nagaland	EMS SAT to be completed by 15th September 2017. Modification in DG	Installation to be completed by May. EMS SAT to be completed by July, 2017.	Completed. DG set-Target Dec 17.

		set foundation to be done by DOP, Nagaland soon.		
7	Mizoram	Completed. DG set placement area is not handed over by P&E, Mizoram. VC unit is to be installed by GE	EMS tuning to be done through DTS simulation by June, 2017.	Completed. DG set-Target Nov17. Subject to immediate hand over of DG site
8	Ar. Pradesh	EMS SAT to be completed by 15th September 2017.	SAT to be completed by May, 2017. EMS tuning to be done through DTS simulation by June, 2017.	Completed. DG set-Target Nov17.
9	Backup NERLDC	Completed.	Completed.	Completed. DG set-Target Nov17.

This is for Kind information

ITEM NO. D.4 : STATUS OF IMPLEMENTATION OF PROJECTS FUNDED FROM PSDF IN NER - NERPC

The status as informed in 136th OCC:

State	Protection System	ADMS	Capacitor Installation	SAMAST**
Arunachal Pradesh	Tendering in process.	DPR preparation stage.	-	SLDC to apprise SERC of the project.
Nagaland	Work under execution. Completion by 31.12.17.	Under scrutiny of Techno-Economic Sub-group.	Under process of approval. To submit undertaking and other required documents.	Documents and relevant papers have been furnished to Nagaland SERC as desired by Chairperson, SERC. SERC has requested for a presentation at Kohima/Nagaland by the SAMAST group

Mizoram	By Sept'17 all LOAs would be issued. First installment has been received.	To be further examined by Techno-Economic Sub-group after interaction with consultant.	Proposal on hold. To be considered upon funds being available.	To furnish action plan.
Manipur	By Sept'17 all tenders to be completed. By Sept-Oct'17 all LOAs' to be issued.	Pilot project under scrutiny of Techno-Economic Sub-group. To submit clarification.	-	NERPC/NERLDC members to meet SERC /MSPCL higher officials to enable take-off of the project.
Tripura	LOAs to be issued by Sept'17.	Submitted to NPC/NLDC.	Under Study stage**	NERPC/NERLDC members to meet TSERC /TSECL higher officials to enable take-off of the project.
Assam	By Oct'17 all LOAs would be issued. Remaining tenders by Sept'17.	Under scrutiny of Techno-Economic Sub-group.	-	Joint meeting of Assam, Meghalaya, NERLDC & NERPC to be held at Kahelipara on 22.09.17 for finalisation of DPR.
Meghalaya	MePTCL – Remaining 10% LOAs by Oct'17. Execution 7% completed. MePGCL – by Sept, 2017 all LOAs	DPR submitted to CEA & NLDC	-	To initiate activity for identification of Metering points.

This is for Kind information

ITEM NO. D.5	**:**	**TECHNICAL MINIMUM SCHEDULE 55% OF IC AS PER IEGC (FOURTH AMENDMENT) - OTPC**

CERC has introduced the Indian Electricity Grid Code, (Fourth Amendment) Regulations, 2016 vide its notification dated 06.04.2016. Clause 6.3B of this amendment regarding Technical Minimum Schedule for operation of Central Generating Stations and Inter-State Generating Stations states that:

"The technical minimum for operation in respect of a unit or units of a Central Generating Station of inter-State Generating Station shall be 55% of MCR loading or installed capacity of the unit of at generating station".

After the notification of the amendment 23 Technical Minimum Scheduling instructions have been issued to OTPC.

OTPC had submitted to CERC that for stable operation of station it is always desirable to run the gas turbines in PM mode and mode changeover from PM to PPM mode must be avoided as long as possible as it hampers machine stability and the turbine can trip during mode changeover. The proposed Technical Limit (55%) is on transient zone of mode changeover, and it is causing the instability of our Gas Turbine operation.

The matter was also raised by OTPC in 133rd OCC meeting and a detailed presentation was given by VP (Plant) in following the Technical minimum of 55%. OTPC had put up the technical, contractual & environmental compliance difficulties with technical minimum as 55% of the Installed Capacity. The forum had taken note of the concerns of OTPC and had assured to take up the matter with CERC. A meeting in this regard was held at CERC on 16/06/2017 where OTPC had put up the facts for the consideration of the Hon'ble Commission. OTPC had requested the Hon'ble Commission to allow OTPC a Technical Minimum generation level at 63% of installed capacity. The outcome will be intimated to the Forum accordingly.

This is for Kind information

ITEM NO. D.6	**:**	**ABRUPT LOAD REDUCTION OF OTPC PALATANA BELOW TECHNICAL MINIMUM DURING SHUTDOWN OF TRANSMISSION LINES - OTPC**

a. On 3rd August 2017, during shutdown of 400 KV Silchar-Byrnihat line, NERLDC had revised OTPC Palatana Scheduled Generation to 300 MW from 08:45 hrs to 17:00 hrs (block 36 to 68).

b. On 16th September 2017, during shutdown of 400 KV Silchar-Azara line, NERLDC had revised OTPC Palatana Scheduled Generation to 300 MW from 07:30 hrs to 17:00 hrs (block 31 to 68).

This Load curtailment is done by NERLDC since Silchar upstream breakers i.e. at Silchar and Azara are still not envisaged in SPS-3 scheme. This concern was also deliberated in special meeting held at NERLDC conference hall at Shillong on dated 23/06/2017.

Due to untimely incorporation of proposed SPS-3 by concerned agencies, OTPC has been asked to reduce the load considerably even below technical minimum level. OTPC had also raised these concerns in the subsequent OCC meeting, and had communicated the concerns with NERPC/NERLDC. (Letters Annexed)

c. On 19th September 2017, NERLDC had revised OTPC Palatana Scheduled Generation to 120 MW from 7am to 4 pm, during approved shutdown of Line-2 of 400 kV system (Palatana-Silchar circuit)

OTPC had taken approval for 400KV line-2 (Palatana-Silchar ckt) in 136th OCC for replacement of Lightning Aresstors of line reactor. The approved shutdown had to be cancelled by OTPC in real time, due to downward revision of schedule by NERLDC from 501 MW to 120 MW i.e. even below technical minimum level of one unit of generation.

NERLDC had conducted the following Load study for 19th Sept 2017 approved shutdown with three scenarios of Palatana generation and corresponding generation of other generators. The load study was done on night of 18th September 2017 and was informed to OTPC at 0016 Hrs of 19th September 2017. As such low load was unmaintainable; OTPC had decided not to avail the approved shutdown.

Plant	**Scenario-1 Generation (MW)**	**Scenario-2 Generation (MW)**	**Scenario-3 Generation (MW)**
Palatana	120	170	190
Rokhia	66	66	44
Monarchak	100	63	63
AGTCCPP	90	90	90
Baramura	21	21	21

Constraint	132 kV P K Bari-Kumarghat: 71 MW	132 kV P K Bari-Kumarghat: 71 MW	132 kV P K Bari-Kumarghat: 71 MW

Bangladesh Load	100 MW
Tripura Demand Met (With Bangladesh)	240 MW

Palatana Project has employed and tested SPS-2 at the station to prevent any

sudden inrush of power into Tripura 132 kV system resulting in critical overloading of the system. It is therefore difficult to understand the rationale behind such schedule advice from NERLDC which is even below technical minimum level of one unit of generation.

Such unmaintainable schedule revisions lead to sizeable generation loss for the plant and renders station vulnerable to tripping as also explained in last OCC Meeting. Further, such downward revision leads to huge UI by the beneficiary states as prevailing high market prices may act as a bottleneck for instant power purchase. OTPC had again raised these concerns with NERPC/NERLDC. (Letter Annexed)

NERPC is requested to take corrective measures so that such arbitrariness in real-time grid operation is curbed for economic and safe grid operation in future.

This is for Kind information

CATEGORY – E: FUNDING FROM PSDF

ITEM NO. E.1	**:**	**RELIABLE COMMUNICATION IN MEGHALAYA SYSTEM UNDER PSDF - MeEPCL**

The detailed project report for reliable communication & data acquisition system up to 132 kV level at an estimated cost of Rs 1973.34 Lakhs was forwarded to the National Load Despatch Centre and the Central Electricity Authority for sanction under PSDF on 11.05.2017. The forum may consider according approval of the same.

Put up for approval

TCC Deliberation :

NERPC Deliberation :

ITEM NO. E.2	**:**	**APPROVAL OF THE DETAILED PROJECT REPORT FOR INSTALLATION OF NUMERICAL LINE DIFFERENTIAL PROTECTION RELAYS IN THE 132 KV TRANSMISSION LINES (SHORT LINES)- MePTCL**

In accordance with the resolution adopted at the 45th PCC meeting on 30.11.2016, the detailed project report for installation of numerical line differential protection relays in the 132 kV transmission lines (short lines) at an estimated

cost of Rs 451.41 Lakhs has been approved by the Board of Directors of MePTCL on 11.09.2017. The same will be forwarded to the NLDC with a proposal for sanction under PSDF. The forum may consider according approval of the same.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO. E.3 : DETAILED PROJECT REPORT FOR RE-CONDUCTORING OF THE 132 KV SINGLE CIRCUIT LINE FROM KHLIEHRIAT TO RATACHERRA WITH HIGH TEMPARATURE AND LOW SAG (HTLS) CONDUCTOR (MEGHALAYA PORTION) - MePTCL

The 132 kV single circuit Khliehriat - Lumshnong - Rattacherra - Panchgram line is an inter-state transmission line, transmitting power between Assam and Meghalaya. This line connects Eastern Jaintia Hills District with the Barak Valley of Assam. The line was commissioned in 1983 and has been in service for over 30 years. The conductor used is ACSR Panther, but the transmission capacity has been restricted to 45 MW only, instead of 80 MW, due to conductor ageing. In order to enhance the capacity of this line, it is proposed to re-conductor with High Temperature and Low Sag (HTLS) conductor using the same towers, in line with resolution adopted in the Operation Control & Coordination (Regional) meetings. This conductor can be loaded up to 150 MW, without changing the design of the towers. With this enhanced capacity, the grid will be more flexible and this will lead to fewer disturbances in the grid. The detailed project report has been approved by the Board of Directors of MePTCL on 11.09.2017 at an estimated cost of Rs 4930.00 Lakhs. The same will be forwarded to the NLDC with a proposal for sanction under PSDF. The forum may consider according approval of the same.

Put up for approval

TCC Deliberation :
NERPC Deliberation :

ITEM NO. E.4 : NER – FIBER OPTIC EXPANSION PROJECT - MePTCL

During 15th NERPC meeting, the 132 KV lines of MePTCL were proposed to be included in the North Eastern Region Fibre Optics (FO) Expansion Project. However, MePTCL wanted to exclude the following transmission lines from the North Eastern Region Fibre Optics Expansion Project:

1. 132 KV NEHU – NEIGRIHMS Single Circuit line
2. 132 KV Khliehriat (MePTCL) – Khliehriat (POWERGRID) Single Circuit line

3. 132 KV Khliehriat – Lumshnong Single Circuit line
4. 132 KV Khliehriat – Myntdu Leshka Hydro Electric Project Double Circuit line

The scope for laying of Fibre Optics 132 KV Khliehriat (MePTCL) – Khliehriat (POWERGRID) Single Circuit line and 132 KV Khliehriat – Myntdu Leshka Hydro Electric Project Double Circuit line have been included under North Eastern Region Power System Improvement Projects (NERPSIP) funded by the World Bank and Government of India. Moreover, MePTCL has included the scope for laying of Fibre Optics on 132 KV NEHU – NEIGRIHMS Single Circuit line and 132 KV Khliehriat – Lumshnong Single Circuit line in the Detailed Project Report for Reliable Communication submitted to the Central Electricity Authority (CEA) and to the National Load Despatch Centre (NLDC) for funding under Power System Development Fund (PSDF).

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. E.5	**:**	**INSTALLATION OF OPGW AND ACCESSORIES INCLUDING COMMUNICATION SYSTEM FOR SONAPANI POWER STATION FROM PSDF– MePGCL**

The OPGW is to link from Power Station to 33Kv Mawprem Bus Station and the same is to be integrated with SLDC NEHU.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. E.6	**:**	**RE- ENGINEERING OF EXISTING BUS BAR FROM ACSR PANTHER TO ACSR ZEBRA CONDUCTOR AND PROVIDING TERMINAL EQUIPMENT AT 132KV SWITCHYARD BAY FOR UPPER KHRI FEEDERS AT STAGE- III POWER STATION, KYRDEMKULAI FROM PSDF– MePGCL**

During the 135th OCC Meeting, MePGCL informed about the re-engineering of existing bus bar at Kyrdemkulai. They informed that as per their system studies the loading of the existing Bus Bar with Panther conductor has exceeded the permissible load and with the recent development of Upper Khri Stage –I and Stage-II Power Station bay extension is necessary at Stage-III Power Station.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. E.7 : DISBURSEMENT OF FUNDS FOR PROJECTS SANCTIONNED UNDER PSDF – MePTCL

The mode of disbursement of fund for projects sanctioned under Power System Development Fund (PSDF) according to the tripartite agreement signed between the State Government, State Utility and National Load Despatch Centre, the Nodal Agency for PSDF is as follows:

First Stage – 30% of sanctioned grant within 15 days from date of signing of the Agreement and fulfilment of all requirements, including requisite legal formalities by the Government of Meghalaya and Utility as per the sanction letter of the project. The release of 1st instalment would be after the Letter of Award has been issued by the entity and agreement has been signed with the contractor.

Second/ Intermediate Stage(s) – 60% of sanctioned grant within 15 days from date of submitting the expenditure details to Nodal Agency by Entity after utilising the fund received in 1st instalment and consumption of self-contribution of Entity.

Final Stage – Balance 10% of sanctioned grant within 30 days from submitting the expenditure details and completion certificate to Nodal Agency by Entity.

The mode of disbursement of funds was later changed from that mentioned in the tripartite agreement (mentioned to be in line with Deen Dayal Upadhayan Gram Jyoti Yojana (DDUGJY) guidelines). The modified mode of disbursements is as follows:

First Stage - 10% of the total grant sanctioned (out of first stage of 30%) shall be released after sanction of grant and signing of tripartite/bipartite agreement,

Second Stage - 20% of the total grant sanctioned (out of first stage of 30%) shall be released in accordance with the award of contracts in maximum no of five tranches.

Third/Intermediate Stage – 60% of the grant after utilisation of the grant disbursed in first instalment and consumption of self-contribution of the Entity.

Final Stage – Balance 10% of the grant on completion/ commissioning of the scheme.

1. The issue is the disbursing of 20% of fund against the amount as per the Letter of Award instead of against the total grant sanctioned. In the scheme sanctioned for Meghalaya, multiple Letter of awards are to be placed and by the time the 20% funding is released, the Contractors who were awarded first has supplied 100% of the items as per Contract and are ready for installation. The Contractors submit 100% invoice, but only 20% payment can be made,

and at the same time they are expected to complete the installation works as well.

2. In view of the above, it is preferable that the funding be disbursed not in accordance with the award of contracts, but against the total grant sanctioned.
3. However, it may also be mentioned that the above mode of disbursing of fund is not according to DDUGJY guidelines.

MePTCL wanted to give a presentation on disbursement of fund according to DDUGJY guidelines:

The MePTCL is proposing the Forum to take up this matter with NLDC to change the mode of disbursing of fund to ensure expeditious execution of the project.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. E.8	**:**	**RECONDUCTORING OF OLD INTRA-STATE TRANSMISSION LINES OF 132KV UMIAM STAGE I – STAGE III DOUBLE CIRCUIT LINE WITH HTLS CONDUCTOR UNDER PSDF - MePTCL**

The 132 KV transmission double circuit line between Umiam Stage I Hydro Electric Project and Umiam Stage III Hydro Electric Project has crossed its useful life of 35 years. The generating stations located at Umiam Stage III HEP, Stage IV HEP, New Umtru HEP, as well as the 400/220 KV interstate substation at Killing, Byrnihat are connected with the rest of the state through this transmission line only. Moreover, the conductor used on this line is ACSR Panther and therefore the current carrying capacity is limited. MePTCL is preparing the Detail Project Report for re-conductoring of this line with HTLS conductor at a tentative project estimated cost of Rs 3648 lakhs (rupees three thousand six hundred forty eight) lakhs. MePTCL is requesting the Forum to consider recommending the funding of this project from PSDF.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. E.9	**:**	**PROPOSED SCHEME FOR AUGMENTATION OF 132/33KV MAWLAI SUB-STATION FROM 3 X 20 MVA TO 3 X 50 MVA, ALONGWITH RE-ENGINEERING OF 132KV BUS BAR FOR FUNDING UNDER PSDF - MePTCL**

Meghalaya Power Transmission Corporation Limited proposes to augment the

existing capacity of 132/33kV Mawlai substation from 3 x 20 MVA to 3 x 50 MVA along with re-engineering of the 132 kV bus bar from copper conductor to Zebra conductor and modification of the existing bus bar. The existing loading of the transformers have reached the optimum level. There is no further scope for adding another transformer except by augmenting the 20 MVA to 50 MVA. Due to overloading of the Transformers load shedding during peak hour has to be carried out to in winters. As loading of the Bus will increase with the augmentation, the present Bus arrangement needs Re-engineering to Zebra conductor to increase the loading capability. This project assumes importance, considering the power scenario in the State capital to meet the current and future demand. The tentative project estimated cost is Rs 5078.00 Lakhs (rupees five thousand seventy eight lakhs) only and is expected to be completed within a period of 24 months from the date of availability of funds.

Members may like to discuss.

TCC Deliberation :
NERPC Deliberation :

ITEM NO. E.10	**:**	**PROPOSED SCHEME FOR CONSTRUCTION OF 2 x 20 MVA, 132/33KV SUB-STATION AT NONGPOH, RI-BHOI DISTRICT, MEGHALAYA, ALONG WITH LOOP IN LOOP OUT (LILO) OF BOTH CIRCUITS OF 132 KV STAGE-III – UMTRU DOUBLE CIRCUIT LINE ON MULTI CIRCUITS TOWERS AT NONGPOH SUB-STATION, FOR FUNDING UNDER PSDF- MePTCL**

Nongpoh is the district headquarters of Ri Bhoi District. The district is fast expanding and developing with many state and central projects, besides industries and agricultural activities. The district is also having a long inter-state boundary and is the gateway to Assam and other states in the NER region; as such the growth potential is very high. The power demand at Nongpoh alone is more than 5 MVA and is presently fed at 33 kV level from three different sources, Stage-III Power Station, Umiam and Byrnihat. Power supply is fed most frequently from Stage-III HEP and Umiam, which are at a distance of 40-45 km. This distance and the growing load on the 33 kV line adversely affects quality of power supply to the District, leading to low voltage in many villages. Moreover, the power supply to the area has become unreliable due to prolonged breakdowns. The construction of the 132/33kV, 2 x 20MVA substation at Nongpoh by looping in and out both circuits of the 132kV Stage-III - Umtru line is primarily to meet the growing demand in the Ri Bhoi District and to improve the quality and reliability of power supply in the entire District. It will also provide an alternative and reliable source of supply to the district headquarter and the adjoining areas. This arrangement would also help in creating an alternative source to feed Umiam, Kyrdemkulai and Byrnihat in the event of faulty conditions in the system. The Ri Bhoi District as a whole would also have a long term benefit as this power infrastructure is expected to take care of the power requirement for the next 10 to 15 year.

This sub-station will also provide for power evacuation from the upcoming 13.5 MW Small Hydro Power Station to be set up in Umran by an Independent Power Producer, viz. M/s JMD Aqua Power Private Limited.

The tentative project estimated cost is Rs 5844.00 Lakhs (rupees five thousand eight hundred forty-four lakhs) and is expected to be completed within a period of 36 months from the date of availability of funds.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

ITEM NO. E.11 : FUNDING OF SUB-TRANSMISSION PROJECTS UNDER THE SCHEME POWER SYSTEM DEVELOPMENT FUND (PSDF) FOR MEGHALAYA

The objective of the scheme is to relieve the congestion in evacuation of power from the 132 kV Sub-stations, through the 33 kV lines and also to add more 33/11 kV Sub-stations.

Accordingly, Meghalaya Power Distribution Corporation Limited (MePDCL) proposed the projects **as per Annexure E.11** for funding under PSDF. The total estimated cost proposed under PSDF is Rs 173.31 crore. The projects were conceived to achieve the following objectives:

- To improve quality, quantity and reliability of power supply.
- To reduce Technical losses.
- To bring about consumers' satisfaction.
- To relieve the overloaded 33 KV Lines and substations.

Members may like to discuss.

TCC Deliberation :

NERPC Deliberation :

DATE & VENUE OF THE NEXT MEETING

The next meeting of 19th TCC & 19th NERPC is proposed to be held in January/February, 2018. The exact date, venue & host will be intimated later.

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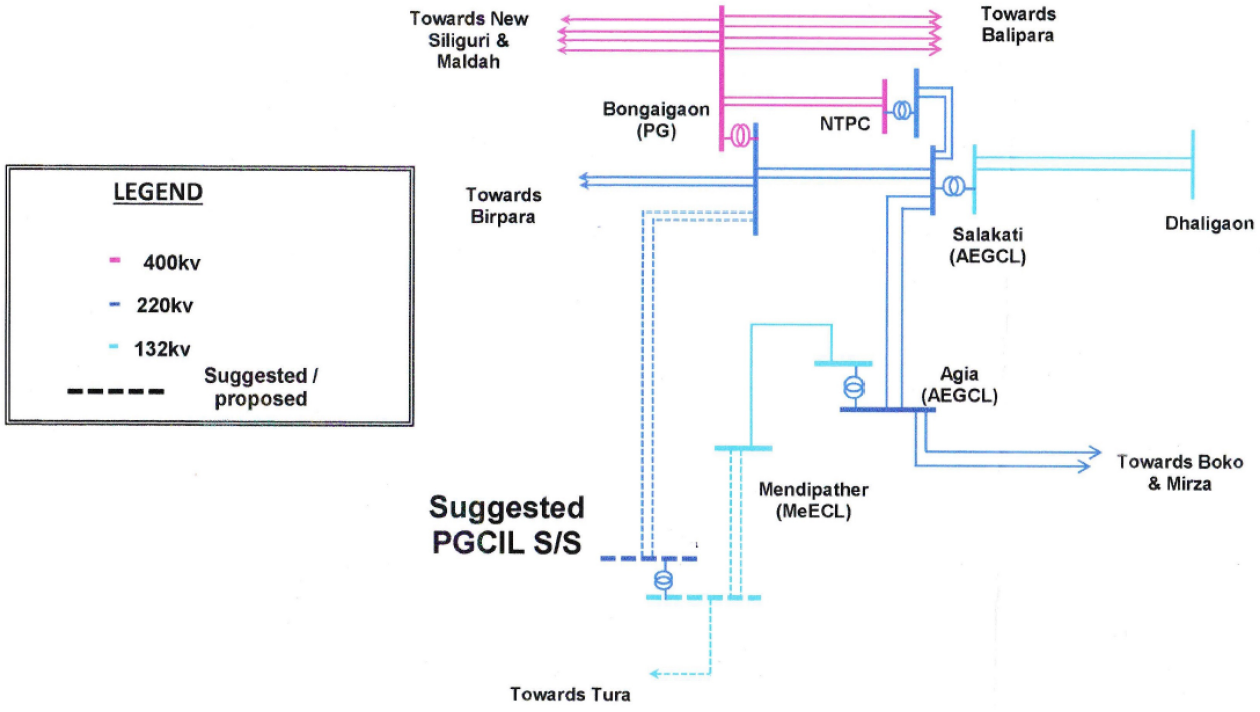
Annex A.17


LEGEND
400kv
220kv
132kv
Suggested / proposed
Towards New Siliguri & Maldah
Towards Balipara
Bongaigaon (PG)
NTPC
Towards Birpara
Salakati (AEGCL)
Dhaligaon
Agia (AEGCL)
Towards Boko & Mirza
Mendipather (MeECL)
Suggested PGCIL S/S
Towards Tura

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
ISO 9001:2008
Ph. No: 0364 - 2534039
Fax No: 0364 - 2534040
Website: www.nerpc.nic.in

Annex B.7

No. NERPC/Com/Corr/2016/*3123* September 19, 2017

To
Chief (Engineering),
Central Electricity Regulatory Commission,
3rd and 4th Floor, Chanderlok Building,
36, Janpath, New Delhi-110001.

Sub: Decision of Commercial Committee of NERPC on "***Review of Point of Connection (POC) Framework"***

Sir / Ma'am,

In the 33rd Commercial Committee Meeting of NERPC held on 25th August 2017 at Sonapur, Assam, the issue of high POC charges paid by some beneficiary constituents of NERPC was discussed. In the said meeting, following broad points were converged:

1. Need for simplification of the method: Present Average Participation (AP)/ Marginal Participation (MP) method needs to be simplified as the present methodology is not clear. The detail calculations should be transparent and made available to all the DICs.

2. Major portion of YTC (about 80-85%) should be recovered as uniform charges (may be part of reliability charges) and should be applied to both generation (in case of ISGS it will be passed to the beneficiaries) and drawal entities.

3. 15-20% may be made sensitive to distance and direction.

4. It was deliberated that in Nordic system where Point of Connection tariff is in place, 15-20 % is variable element which is linked to marginal loss factor at each node which is transparent and scientific based on studies.

5. Tripura representative suggested National Postage Stamp which might be largely achieved with 80-85% uniform charge.

6. Meghalaya representative pointed out that quarterly variation in charges create a jerk as the States can file petition to SERC only on Annual basis. It was requested to have fixed rate throughout the year and have adjustment bill at the year end.

7. It was felt that HVDC charges should be socialized.

It was agreed in the meeting that the issue would be discussed in the ensuing TCC/NERPC meetings which is likely to be held in October 2017 for a resolution and then the resolution of NERPC would be forwarded by NERPC Secretariat to CERC and MOP.

In view of above, it is humbly submitted before the Hon'ble CERC for consideration of the above points while reviewing the point of Connection (POC) framework.

Thanking you.

Yours faithfully,

(B. Lyngkhoi)
Director/SE (C &O)

Sharing of Inter State Transmission Charges and Losses

probable way forward

Probable option for review of existing framework of sharing of interstate transmission charges and losses as sought by Hon'ble CERC.

(Presentation prepared with inputs from NERPC Secretariat and APDCL)

33rd. CCM of NERPC on 25th. August, 2017

PoC – way forward

- Simplification of method
- Major portion (about 80-85%) to be uniform charges may be part of reliability charges
- 15-20% may be sensitive to distance and direction
- HVDC charges to be socialised

PoC – way forward

Para 7(1)(3) of Tariff Policy:

- **The spread between minimum and maximum transmission rates should be such as not to inhibit planned development/augmentation of the transmission system but should discourage non-optimal transmission investment.**

Example of
Point of Connection Tariff in Nordic Countries

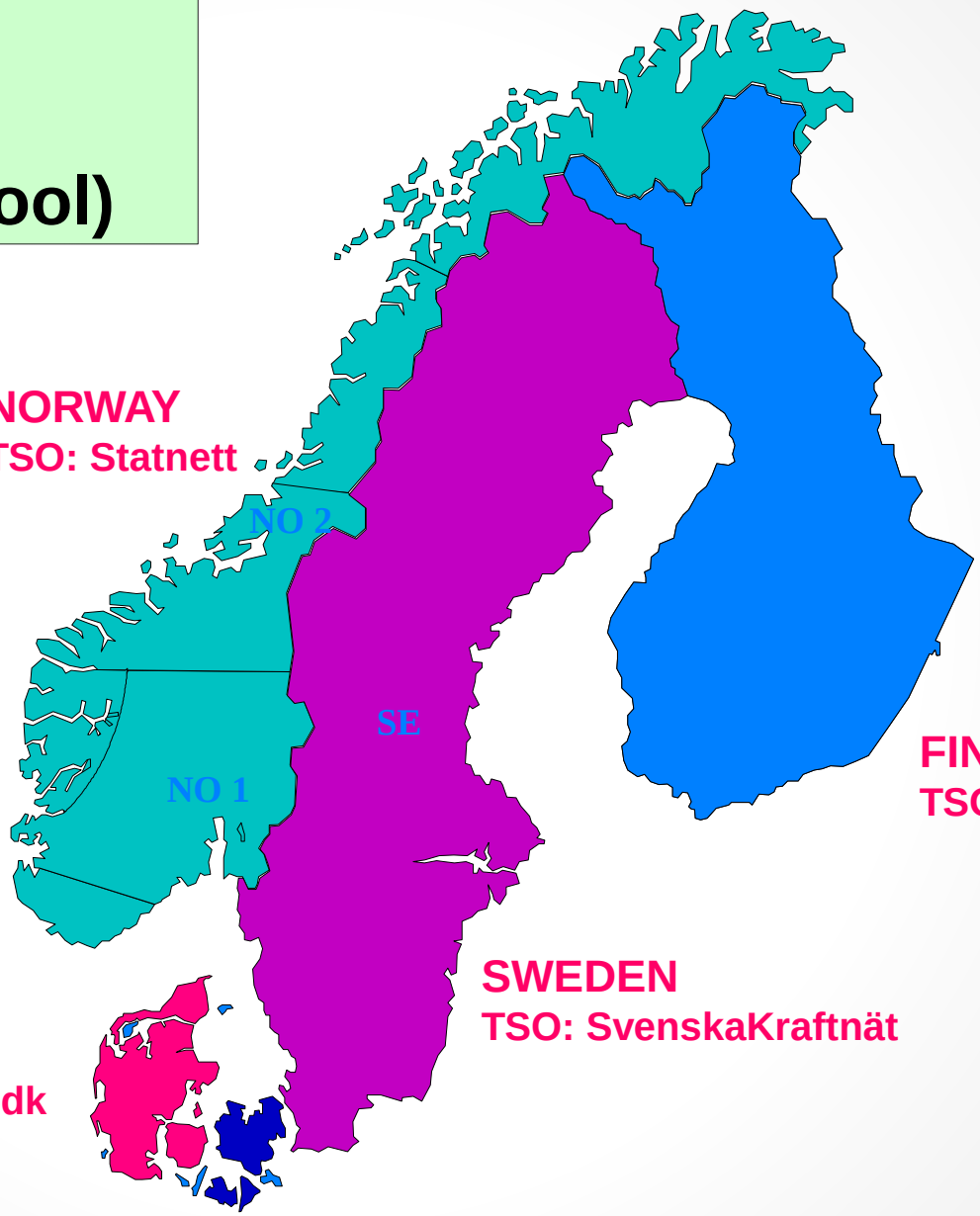
80-85% Fixed
and
15-20% Variable element

The Nordic System

- Denmark uses thermal & wind power
- Norway has hydropower
- Finland, Sweden have mix of hydro and nuclear.
- Nordic grid comprises the Power systems of Denmark, Sweden, Norway and Finland, as well as several interconnections between the countries.
- A single area with a common frequency, with the exception of Western Denmark, which is interconnected with the grid that falls within the area of the continental cooperation organisation UCTE.
- World's first international electric power exchange, Nord Pool, was launched in 1996.

- In 1963, Nordel, a Nordic cooperation program in the field of electric power supply, was established.

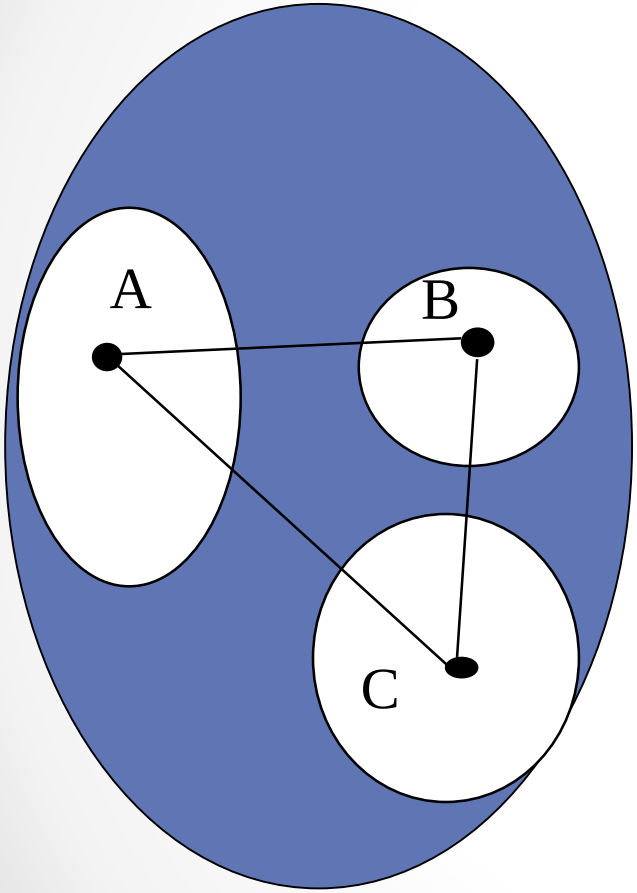
4 Countries
4 TSOs
1 PX (Nord Pool)



Transmission pricing

- Objectives
  - Facilitate trade in the open market.
  - No discrimination of participants in the market. Open access to the grid, the physical market place, for all market participants.
  - Information openness (transparency)
  - Effective use of the grid: Introduce incentives to effective use of the available grid resources.
  - Cover grid cost
  - No distortion of competition for generators and consumers.

Point of connection tariff



The tariff is calculated for input and output in each node

The price is expressed in a price formula and is independent of the power "path".

The pricing is transparent

Incentives for effective use of grid

Facilitate bilateral as well as spot power trade

Marginal Cost meaning

- In economics, marginal cost is the **change in the cost that arises when the quantity produced is incremented by one unit**, that is, it is the cost of producing one more unit of a good.

- Intuitively, marginal cost at each level of production includes the cost of any additional inputs required to produce the next unit. At each level of production and time period being considered, marginal costs include all costs that vary with the level of production, **whereas other costs that do not vary with production are considered fixed.**

The Point Tariff

- Transmission tariff design premised on marginal loss factor which constitutes variable part of the tariff
- Marginal cost in transmission is mainly cost of losses
- Marginal cost is given by marginal losses.

- Tariff based on this principle will give signal when and where to produce and consume :

Generation in deficit area or consumption in surplus area:

(-) ive marginal loss.

Generation in surplus area or consumption in deficit area:

(+) ive marginal loss.

Three parts of point of connection tariff

- **Basic G = Fixed tariff element for generation**
- **Basic L = Fixed tariff element for load.**
- **Variable element = Marginal loss factor**

- **Variable element = 15-20 %**
- **Fixed element (G,L) = 80-85 %**

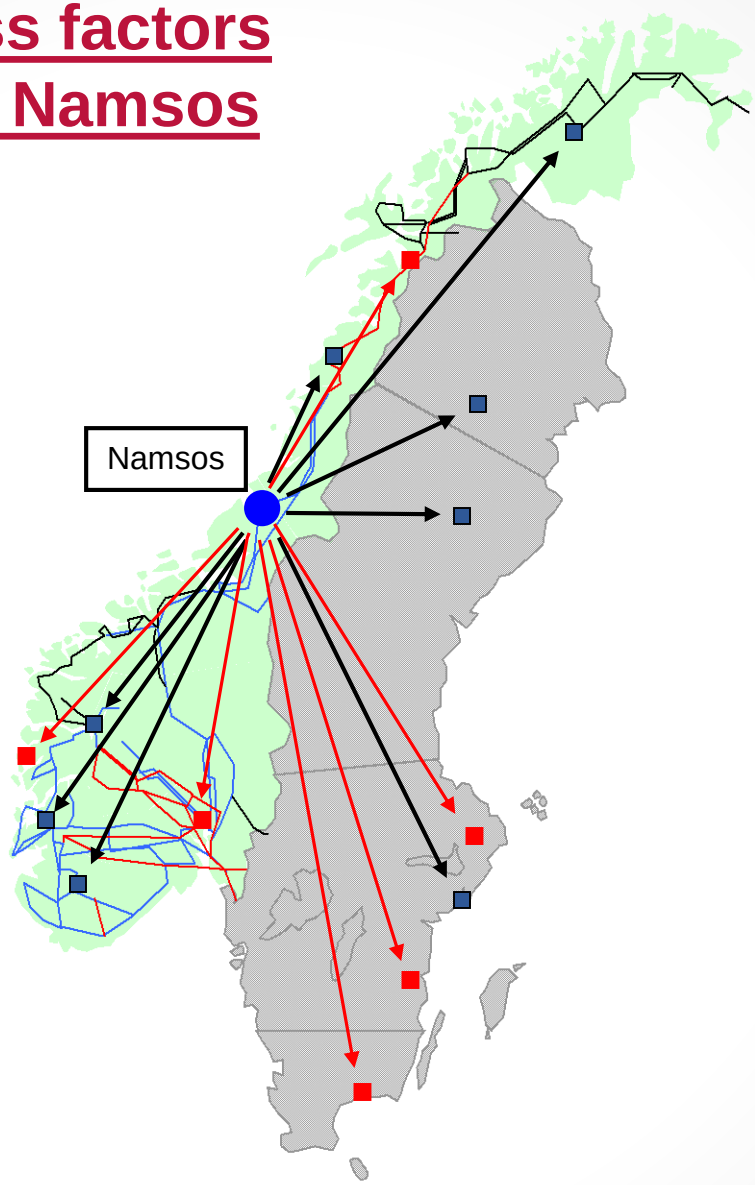
Example:Marginal loss factors in the main grid node Namsos

Sum of pro rata scaled marginal losses between Namsos and all nodes with consumption in Norway/Sweden

+

Sum of pro rata scaled marginal losses between Namsos and all nodes with generation in Norway/Sweden

Divided by 2



This process is repeated automatically for all nodes in Norway

Aim of the variable element

- Marginal losses are calculated for each node as the sum of weighted marginal losses from that node to all other nodes
- Represents marginal cost in the Grid.
- By this price element, the customer will have a signal for the marginal cost he induces in the System.

Point of Connection Tariff ; Philosophy for allocation of cost base

- Calculate revenue from variable element (Rs/MWh)
- Calculate revenue from Basic G (Rs/MWh)
- Allocate balance Regional cost base to Basic L (Rs/MW)

Part-I Revenue from variable element

- Variable element : What the grid company can expect to receive from the variable element is calculated as follows:

Variable element (Rs) =
Energy price (Rs/MWh) *Marginal loss factor (%) *Energy (MWh)

- **Energy price:** Price of energy for covering losses. Has to be determined in a transparent manner approved by the regulator. **Transparency in Norway is achieved by value the variable element according to the price set in the day-ahead market.**
- **The marginal loss factor:** Depend on the power flow in the system, need to be updated regularly so the estimates are as accurate as possible.
- **Energy:** Either fed into or drawn from the transmission grid at the connection point in question for a given time period.

Part-II Revenue from Generator

Part-II Revenue from Load

- **Fixed elements to be applied on Generation and Load**

Annex.B.13

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड
(भारत सरकार का उद्यम)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A Government of India Enterprise)

उत्तर पुर्वी क्षेत्रीय भार प्रेषण केंद्र : लोअर नोंग्राह, लापालांग,शिलांग - 793 006,(मेधालय)
North Eastern Regional Load Despatch Centre : Lower Nongrah , Lapalang, Shillong - 793 006, (Meghalaya)
Ph :0364 2537470,2537427, fax - 2537486 Website :www.nerldc.org, Email- nerldc@posoco.in, CIN : U40105DL2009GOI188682

संदर्भ : उपूक्षेभाप्रेके /2017/ 9922
Ref: NERLDC/ 2017/ 9922

दिनांक/Date : 30.08.17

To:

General Manager (AM),
NERTS, POWERGRID Complex,
Lower Nongrah, Lapalang,
Shillong – 793006

Copy To:

Member Secretary, NERPC,
NERPC Complex,
Dong Parmaw, Lapalang,
Shillong – 793006

विषय / Sub : Requirement of PMUs at Power Stations of size more than 25 MW in NER

Dear Sir,

Please refer to discussions in 7th NETeST Meeting of NERPC held on 17th Aug 2017. As discussed and keeping in view the necessity for better visualization, event analysis, identification of source of oscillation triggered by generator etc., PMUs may be installed in the low voltage side of the step-up transformer of following generators in NER in addition to the PMUs already proposed under URTDMS project along with all necessary communication links and visualization tools at NERLDC:

1. AGBPP (9 nos.)
2. AGTCCPP (6 nos.)
3. Ranganadi (3 nos.)
4. Doyang (3 nos.)
5. Khandong (3 nos.)
6. Kopili (4 nos.)
7. Monarchak (2 nos.)
8. Loktak (3 nos.)
9. Palatana (4 nos.)
10. BgTPP (3 nos.)
11. Baramura (2 nos.)
12. Rokhia (3 nos.)
13. Namrup (2 nos.)
14. Lakwa (8 nos.)
15. Langpi HEP (2 nos.)
16. Umiam Stg I (4 nos.)
17. Umiam Stg III (2 nos.)
18. Umiam Stg IV (2 nos.)
19. MLHEP (3 nos.)
20. New Umtru (2 nos.)

Thanking you.

भवदीय /Yours faithfully

(टी.एस सिंह / T.S Singh)
(कार्यपालक निदेशक / Executive Director)
उपूक्षेभाप्रेके,शिलांग/NERLDC, Shillong

Annex. D2-Part1

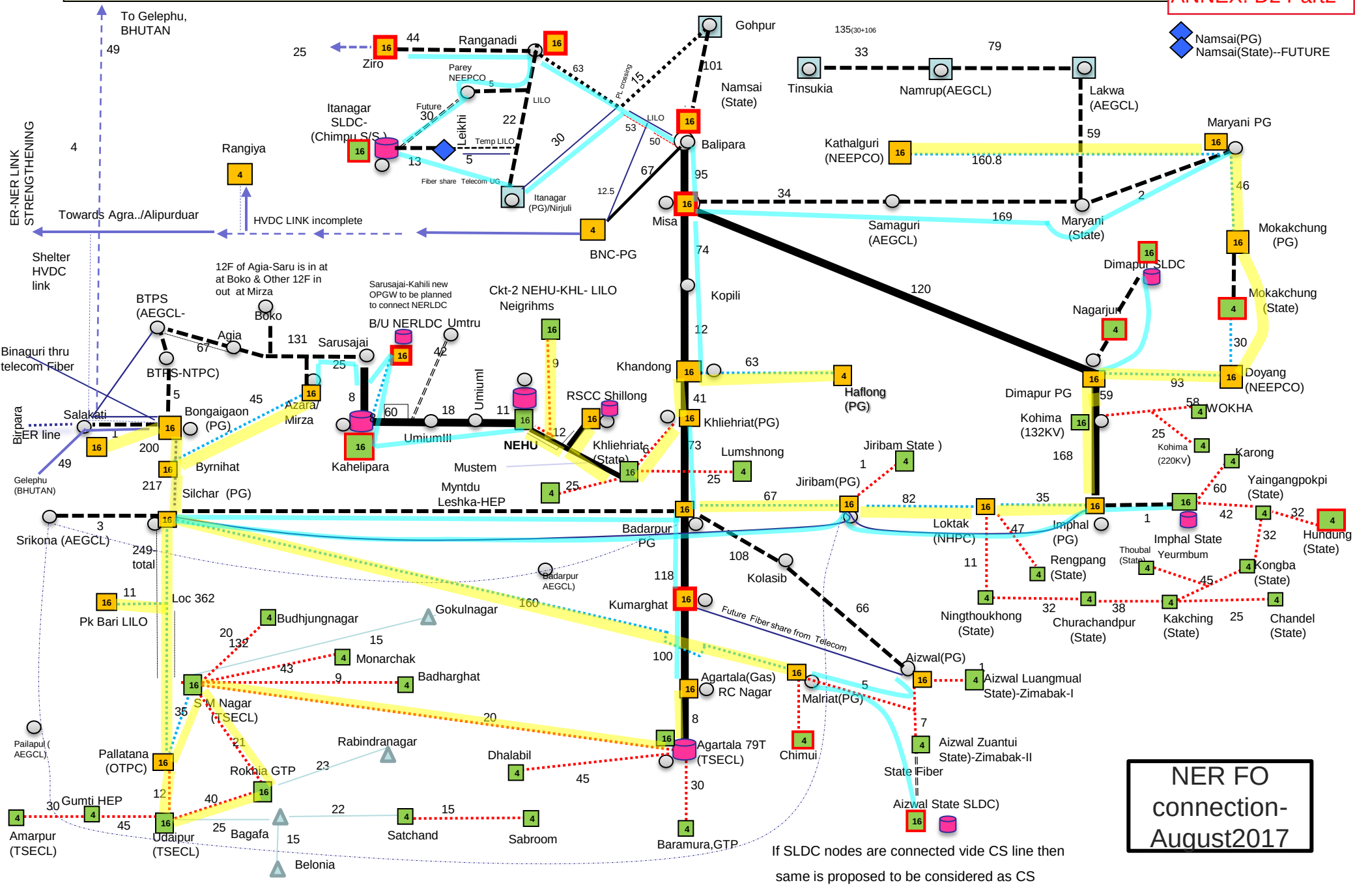
NER FO EXPANSION Project-State Wise List of Links

List of Links are defined after revsion of 15th RPC and change in names as requested by Tsecl,Tripura; MSPCL, Manipur& DoP,Nagaland

Sl No.	From	To	VOLTAGE LEVEL (in KV)	Owner of T/L	Revised Route Length (km)
NER Central Sector					
1	Badarpur(PG)	Jiribam(PG)	132	CS	67
2	Jiribam(PG)	Loktak(NHPC)	132	CS	82.461
3	Loktak(NHPC)	Imphal(PG)	132	CS	30.372
4	Agartala (PG)	R C Nagar(NEEPCO)	132	CS	7.656
5	Silchar(PG)	Melriat(PG)	400 charged at 132kV	CS	142.905
6	Surajmaninagar(TSECL)	Pallatana(OTPC)	400 charged at 132kV	CS	36.714
7	Bongaigaon(PG-400kV)	Salakati-BTPS AEGCL	via 220kV	CS	4.5
8	Mirza (Azara)	Byrnihat	400	CS	47.208
9	Silchar	Pallatana	400	CS	247.409
13	**LILO Sil-palla at P.K.Bari S/S(Kanchanpur-PK Bari 132kV)**		**132**	**CS**	**12**
14	**Parey**	**Chimpu**	**132**	**CS**	**26**
	Central Sector Total(Supply by SSDGI & Erection by TCIL, Sabari)				**705.000**
MEGHALAYA					
1	Nehu (S/C)	Neigrihms	132	Meghalaya	9
2	Khliehriat(PG)	Khliehriat(State) (S/C)	132	Meghalaya	5.282
3	Khliehriat(State) (D/C)	Myntdu Leshka-HEP	132	Meghalaya	24.932
4	Khliehriat(state)	Lumshnong (S/C)	132	Meghalaya	25.19
	Meghalaya Total-PKG- (Supply bySSDGI & erection by TCIL)				**64.404**
TRIPURA					
1	Agartala(TSECL)	Baramura GTP	132KV S/C	TSECL	30
2	Agartala(TSECL)	Surajmaninagar(TSECL)	132 D/C	TSECL	17.918
3	Surajmaninagar(TSECL)	Budhiungnagar	132-D/C	TSECL	17.863
4	Pallatana(OTPC)	Udaipur(TSECL)	132 s/c	TSECL	11.528
5	Udaipur(TSECL)	Rokhia GTP	132 S/C---***SM Ngr/monarchok	TSECL	45.219
6	Udaipur(TSECL)	Gumti HEP	66-	TSECL	37.678
7	Gumti HEP	Amarpur(TSECL)	66	TSECL	24.003
8	Satchand(TSECL)	Sabroom(TSECL)	66	TSECL	12.244
9	Surajmaninagar(TSECL)	Badharghat	132(future)[66KV available bad-ag]	TSECL	9
10	**79Tilla(TSECL)**	**Dhalabil**	**132D/C**	**TSECL**	**43.037**
11	**Surajmaninagar(TSECL)**	**Monarchak (NEEPCO)**	**132D/C**	**TSECL**	**42.172**
12	**Surajmaninagar(TSECL)**	**Rokhia GBPP(TSSECL)**	**132D/C**	**TSECL**	**21.354**
	Tripura Total-PKG-1A(Supply by SSDGI, Erection by TCIL & Sabari)				**312.016**
MANIPUR					
1	Loktak(NHPC)	Ningthoukhong(State)	132	Manipur	11
2	Imphal(State)	Karong	132	Manipur	60
3	Yurembam	Yaingangpokpi	132	Manipur	42
4	Yaingangpokpi	Kongba	132	Manipur	32
5	Kongba	Kakching	132	Manipur	45
6	Konngba Kakchin LILO at Thoubal	Thoubal	132	Manipur	10.626
7	Kakching	Churachandpur	132	Manipur	38
8	Yaingangpokpi	Hundung	132	Manipur	32
9	Kakching	Chandel	132	Manipur	25
10	Loktak(NHPC)	Rengpang	132	Manipur	47
11	Jiribam	Jiribam	132	Manipur	1
12	Ningthoukhong-	Churachandpur	132	Manipur	32
	Manipur Total-PKG-1A(Supply by SSDGI & Stringing by TCIL)				**376**
NAGALANAD					
1	Kohima	Okha	132 S/C	Nagaland	58
2	Kohima(132KV)	Kohima(220KV)	132	Nagaland	25
3	Doyang--Sains (via lilo OF Doyang -Okha)	Sains	132	Nagaland	10
	Nagaland Total-PKG-1A(Supply by SSDGI & Stringing by TCIL)				**93**
MIZORAM					
2	Aizwal(PG)	Zimabawk-I(Luangmual)	132	Mizoram	1
	Mizoram TotalPKG-1A(Supply by SSDGI & Stringing by TCIL)				**1**
				Total Mizoram	**1**
Supply & Erection" under Package-III-C (Supply by M/s Taihan, Stringing by Sabari)					
1	Khandong	Haflong	132	CS	62.398
2	Dimapur(PG)	Doyang(NEEPCO)	132	CS	91.567
3	Doyang(NEEPCO)	Mokokchung(State) instead of Mokokchung-POWERGRID	132	CS	26.913
4	Mokakchung(PG)	Maryani(PG)	220	CS	50.93
5	Maryani(POWERGRID) instead of Mariani-State	Kathalguri(NEEPCO)	400 charged at 220kV	CS	159.245
				Central sector considered in Packga IIIC	391
				Total Central Sector	**1096**
				Total State Sector	**846**
				Total (Cntral+State)	**1942**

Fibre Optic Expansion Project of NER – FO Network—Considered with ULDC, MW Vacation & NER FO EXPANSION

ANNEX. D2 Part2



If SLDC nodes are connected vide CS line then same is proposed to be considered as CS

NER FO connection-August2017

Ring formation & Qtty finalization for STM-16 & STM-4 Fibre Optic Expansion Project of NER – FO Network

LEGEND

NER MW replacement FO

Proposed FO links under NER Expansion CS Lines/State Lines

Existing ULDC FO

Telecom Fiber

Fiber in NEA-W/ Other project

State owned Fiber

Link removed from FO expansion

NERLDC, Backup NERLDC, SLDC

Nodes under Expansion / STM-4-ECI

Node discarded/In Future

16 4 CS Nodes under Expansion-STM-16, STM 4

16 4 Newly proposed CS Nodes under Expansion STM-4, 16

16 4 CS Nodes under Expansion STM-4, 16-already approved

16 4 Newly proposed State Nodes under Expansion STM-4, 16

- Yellow Highlighted links are already approved STM-16 under NER Expansion

Sky Blue Highlighted links are **proposed** STM-16 under NER Expansion for STM16 Ring formation

•REMOVED LINES

NER FO

Annex. E-11

Agenda – FUNDING OF SUB-TRANSMISSION PROJECTS UNDER THE SCHEME POWER SYSTEM DEVELOPMENT FUND (PSDF) FOR MEGHALAYA.

THE PROPOSED 33 KV TRANSMISSION LINES AND 33 KV SUB-STATIONS AT THE ESTIMATED COST NOF RS 133.51 CRORE ARE AS BELOW :-

1. **New 33 kV SC line on wolf conductor from the newly constructed 132 kV Lad Nongkrem (Mawlyndep) Sub-station to the existing 33 kV Jongsha Sub-station (17 Km).** This line will facilitate evacuation of power from 132 kV Sub-station at Mawlyndep to Jongsha and Mawkynrew area. The estimated cost is Rs 4.82 crore.

2. **New 33 kV SC line on wolf conductor from existing 33 kV Jongsha Sub-station to existing 33 kV Laitlyngkot Sub-station (15 km)** - This line will improve power stability in Laitlyngkot area in general and also provide alternative supply to Pynursla, which is presently fed from Mawphlang. The estimated cost is Rs 4.25 crore.

3. **New 33 kV SC line on wolf conductor from existing 132 kV Mawphlang Sub-station to existing 33 kV Weiloi Sub-station (20 km).** Presently, there is only one circuit on Racoon conductor, which feeds power to existing 33kV Weiloi Sub-station. This line extends up to Mawsynram and Ranikor on one side and up to Mawkyrwat on the other. There is rapid load growth in the area for which it is felt necessary to construct another new line from the 132 kV Mawphlang Sub-station to 33 kV kV Weiloi Sub-station on Wolf conductor, to provide stable power supply to both Mawsynram and Mawkyrwat. The estimated cost is Rs 5.67 crore.

4. **New 33 kV SC line from existing 132 kV Mawphlang Sub-station to the proposed 33 kV Krang Sub-station (27 Km).** This line will evacuate power directly 33 kV Krang Sub-station proposed under DDUGJY-II. This line will facilitate interconnection with 132 kV Umiam Sub-station. This will provide flexibility for power drawal from 132 kV Mawphlang Sub-station and the 132 kV Umiam Sub-station. The estimated cost is Rs 7.66 crore.

5. **New 33 kV SC line from existing 33 kV Mawkyrwat Sub-station to existing 33 kV Ranikor Sub-station (30 km).** This line will improve power stability in Ranikor area and will also provide alternative supply to existing 33 kV Ranikor Sub-station, which is presently being fed from Mawsynram. The estimated cost is Rs 8.51 crore.

6. **Reconductoring of 33 kV SC line from 132 kV Mawlai Sub-station to 132 kV Umiam Sub-station (13 km) via existing 33 kV Mawiong Sub-station.** There is rapid load growth in the area for which it has become necessary to augment the current carrying of the line using

Wolf conductor, which is having a higher load carrying capacity. This line will also improve power stability in Mawiong area in general and also provide alternative supply to Mawiong, which is presently fed from 132 kV Mawlai Sub-station. The estimated cost is Rs.3.27 crores.

7. **LILO of 33 kV SC Air Force - Assam Rifles line along with new 33 kV Mylliem Sub-station (4 km).** The New 33/11kV, 1x5 MVA Sub-station at Mylliem is required in order to cater to the increasing load growth in the area. This will also facilitate decongestion of the existing 33/11 KV Air Force substation feeding the area, which will ultimately have a cascading effect on the entire power system. The estimated cost of LILO with Sub-station is Rs 3.43 crore.

8. **LILO of 33 kV SC Lapalang – Nongkrem line along with new 33 kV Mawshbuit Sub-station (4 km).** The New 33/11kV 1x2.5 MVA Sub-station at Mawshbuit is required in order to cater to the increasing load growth in the area. This will also facilitate decongestion of the existing 33/11 KV Happy Valley substation feeding the area, which will ultimately have a cascading effect on the entire power system. The estimated cost of LILO with Sub-station is Rs 3.13 crore.

9. **LILO of 33 kV SC Mawlai-Mawphlang line at existing 33 kV Mawprem Sub-station and re-conductoring of this line from 132 kV Mawlai Sub-station to 33 kV Mawprem Sub-station (2.5 km).** This line will improve power stability in Mawprem area in general and also facilitate interconnection to create flexibility for power drawal from 132 kV Mawphlang Sub-station and the presently feeding 132 kV Mawlai Sub-station. The estimated cost is Rs 0.63 crore.
10. **Reconductoring of 33 kV SC line from 33 kV Moowakhu Sub-station to 33 kV Ialong Sub-station (12 km).** This line will improve power stability in Ialong and Shangpung area in general, which is presently fed from 132 kV Mustem Sub-station. This will also facilitate interconnection between 132 kV Khliehriat Sub-station and 132 kV Mustem Sub-station, thereby provide flexibility for power drawal, as required. The estimated cost is Rs 3.02 crore.

11. **New 33 kV SC line from existing 33 kV Mookaiaw Sub-station to existing 33 kV Priang Sub-station (20 km).** The existing 33/11 KV Priang Substation, though situated in West Jaintia Hills District, falls under the jurisdiction of Khliehriat Distribution Division, since it is getting power supply from 33/11 KV Moowakhu substation, Khliehriat in East Jaintia Hills District. This substation is providing power supply to 15 villages and the connected DT capacity is more than 2 MVA. The line length is about 37 kms, which passes through deep jungle and is susceptible to frequent line faults. In view of the above difficulties, it is proposed that power supply to 33 kV Priang Sub-station be taken from 33 kV Mookaiaw Sub-station. This line will provide alternative options for power supply in times of interruptions and faults in the

existing network, thereby ensuring reliability and quality of power supply in the system. The estimated cost is Rs 5.09 crore.

12. **New 33 kV SC line from existing 33 kV Nartiang Sub-station to the proposed 33 kV 1x5 MVA Namdong Sub-station (20 km), with bay extension at Nartiang.** Namdong and its adjoining areas up to Khanduli bordering Assam is getting power supply through a SC 11 KV Mynsngat feeder from Nartiang. This line is approximately 65 Kms long including spur lines and susceptible to frequent fault in the line. Hence thes proposed 33 kV line as well as sub-station will improve power stability in Namdong area. The estimated cost for the line is Rs 5.59 crore and for the substation is Rs 2.30 crore.

13. **New 33 kV SC line from 132 kV Mustem Sub-station to existing 33 kV Khlieh Tyrshi Sub-station (8 km), with bay extension at Mustem.** At present, the primary power supply to Khliehtyrshi substation is coming from 132/33 KV Mustem substation via 33/11 KV, 2x5MVA Jowai substation. This results in overloading of the 33KV line from Mustem to Jowai and the Bus (Raccoon conductor) at Jowai. Approximately 10-15 MW of power from 132/33 KV Mustem Substation to Khliehtyrshi substation can be evacuated and the constraint of the bottleneck from Mustem to Jowai can be avoided. The estimated cost is Rs 2.77 crore.

14. **New 33 kV SC line from existing 132 kV Norbong Sub-station to existing 33 kV Khanapara Sub-station (16 km).** There is rapid load growth in the area for which it is necessary to have another line to evacuate power directly to 33 kV Khanapara Sub-station. This line will also help to improve power stability in Killing area. The estimated cost is Rs 4.54 crore.

15. **New 33 kV SC line from existing 33 kV Nongpoh Sub-station to the proposed 33 kV Umden Sub-station (18 km) and the construction of the 33/11 kV 1x5 MVA Sub-station at Umden.** This line will improve power stability in Umden area. The New Sub-station at Umden is required in order to cater to the increasing load growth in the area. This will also facilitate decongestion of the existing 33/11 KV substation feeding the area, which will ultimately have a cascading effect on the entire power system. The estimated cost for the line is Rs 5.12 crore and for the substation is Rs 2.30 crore.

16. **New 33 kV SC line from 220/132 kV New Shillong Sub-station to 33 kV Bhoirymbong Sub-station (15 km).** This line will improve power stability in Bhoirymbong area in general and also facilitate interconnection to create flexibility for power drawal to Ri Bhoi District. This line will also cater to the load growth of the area. The estimated cost is Rs 4.25 crore.

17. **New 33 kV SC line from 132 KV Ampati (Chiringpara) Sub-station to the proposed 33 kV 2x5 MVA Sub-station at Ampati (8 kms).** Ampati is a newly created District Headquarters

which is fast developing into an area of commercial activities. From the first-of-a-kind Garment Making Factory at Hathisil to the Indo-Bangla Border Trade at Kalaichar and the booming of Khadi and Agro based industries in the district, , the construction of a new 33/11KV 2x5 MVA Sus-station will aid in the power supply requirement and proportionate Revenue returns. The New Sub-station at Chiringpara (Ampati) is required in order to cater to the increasing load growth in the area. The estimated cost for the line is Rs 2.27 crore and for the substation is Rs 4.60 crore.

18. **LILO of 33 KV Garobadha Feeder II along with new 33 KV Babadam Sub-station (10 kms) -** Babadam is located approximately 33 kms away from Tura town and falls under the jurisdiction of Tura Rural Area, under Garobadha Distribution Sub-Division. The problem of constant low voltage due to the long 11 KV line tapped from Tura Profit Centre Area and the subsequent line outages, is frequent in this area. This can be eliminated with the construction of a 33/11KV, 1x5 MVA Sub-Station in Babadam. A permanent Convention Centre is also being jointly developed by the Garo Baptist Church and the Government of Meghalaya, wherein approximately 2 (two) Lakh devotees will gather annually for the Convention. At present, the PWD Department is also developing a National Highway NH 127B which will connect Nidanpur-Phulbari-Rajaballa-Selsella(Simbukol)-Goeragre areas passing through Babadam. In terms of power supply stability and better voltage profile, the construction of the Babadam Sub-Station will greatly benefit the general public. The estimated cost for the line is Rs 2.83 crore and for the substation is Rs 2.30 crore.

19. **New 33 kV SC line from the 132 KV Praharinagar Sub-station to the 33 KV Praharinagar Sub-station (6 kms).** This line will improve power stability in the area in general and also facilitate evacuation of power from the newly constructed 132 kV Preharinagar Sub-station. This line will also cater to the load growth of the area. The estimated cost is Rs 1.72 crore.

20. **New 33 kV SC line from 132 KV Praharinagar SS to 33 KV Dakopgre Sub-station (composite with 11KV due to ROW problem) (8 kms).** This line will improve power stability in the area in general and also facilitate evacuation of power from the newly constructed 132 kV Preharinagar Sub-station. The estimated cost is Rs 2.27 crore.

21. **New 33KV SC line from the proposed NERPSIP SS at Rajaballa (Guttlibari) to the existing 33 KV SS at Selsella (12 kms).** This line will evacuate power to Selsella and will cater to the load growth of the Sub-Division and for stability of power supply. The estimated cost is Rs 3.40 crore.

22. **New 33 KV DC line from existing 33 KV Dobasipara Sub-station to existing 33 KV Rongata (Baromile) Sub-station (14 kms).** This will improve power supply in Chokpot and Dalu area. The estimated cost is Rs 3.97 crore.

23. **New 33 kV SC line from 132 KV Mendipathar SS to 33 KV Songsak Sub-station (45 Km).** Out of 45 kms, 10 kms shall be drawn as composite Line of 33 KV and 11 KV on 14 mtr Poles. This line will evacuate power from the Sub-station to Songsak and then to Williamnagar area and will cater to the load growth of the District and for stability of power supply. The estimated cost is Rs 15.60 crore.

24. **LILO of 33 kV Dainadubi – Nangalbibra line along with new sub-station at Rongjeng (15 km).** Rongjeng is a fast developing area in East garo Hills District. It is also an important commercial and educational centre with increasing demand for power. The New 33/11kV, 1x5 MVA Sub-station at Ronhjeng is required in order to cater to the increasing load growth in the area. This will also facilitate decongestion of the existing 33/11 KV Darugre substation feeding the area, which will ultimately have a cascading effect on the entire power system. The estimated cost of LILO with Sub-station is Rs 15.35 crore.

25. **LILO of 33KV Nongalbibra - Baghmara line along with new sub-station at Siju (3 kms) -** The New 33/11kV 1x2.5 MVA Sub-station at Siju is required in order to cater to the increasing load growth in the area. This will also facilitate decongestion of the existing 33/11 KV Nangalbibra substation feeding the area, which will ultimately have a cascading effect on the entire power system. The estimated cost of LILO with Sub-station is Rs 2.85 crore.

A. EVACUATION PLAN AT 11 KV FOR PROJECTS FUNDED UNDER NORTH EASTERN REGION POWER SYSTEM IMPROVEMENT PROJECT.

For evacuation of power at 11 kV, the construction of 11 kV lines for all 11 kV Sub-stations was not considered for approval under NERPSIP. The estimates have been prepared at the amount of Rs 4.80 crore. Due to fund constraint faced by MePDCL, it is proposed that the funding of the above mentioned work be also taken up under PSDF, so that power evacuation can be affected and that the assets created are fully utilised.

B. INSTALLATION OF CAPACITOR BANK IN 33/11 KV SUBSTATION

The installation of Capacitor Bank in 23 numbers of 33/11 KV substations is proposed to improve power factor. The benefits to the Utility are

Reduction in T & D loss (through reduction in current)

- Additional units available for sale
- Lower Impact on environment

Release of Blocked Capacity (through reduction in apparent power)

- Defer Capital Investment
- Better utilization of fixed asset/capital investment

Better asset management (operation at lower temperatures)

- Lower life cycle cost
- Longer life of equipment & lower replacement cost
- Better voltage profile

The estimated cost of the capacitor bank is Rs 35.00 crore.