



भारत सरकार Government of India

विद्युत मंत्रालय Ministry of Power

उत्तर पूर्वी क्षेत्रीय विद्युत समिति

**North Eastern Regional Power Committee**

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

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Website: www.nerpc.nic.in

No. NERPC/SE (O)/OCC/2018/2265-2302

Dated: July 30, 2018

To,

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

**Sub: Minutes of 146<sup>th</sup> OCC Meeting.**

Sir/Madam,

Please find enclosed herewith the minutes of 146<sup>th</sup> OCC Meeting held at Guwahati on the **17<sup>th</sup> July, 2018** for your kind information and necessary action. The minute is also available on the website of NERPC, [www.nerpc.nic.in](http://www.nerpc.nic.in).

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

**Encl: As above**

भवदीय / Yours faithfully,

बि. लिंगखोइ / B. Lyngkhoi  
निदेशक / Director/ SE

Copy to:

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



**निदेशक / Director/ SE**

## North Eastern Regional Power Committee

### **MINUTES OF THE 146th OPERATION COORDINATION**

#### **SUB-COMMITTEE MEETING OF NERPC**

**Date** : 17/07/2018 (Tuesday)  
**Time** : 11:00 hrs  
**Venue** : "Hotel Nandan", Guwahati.

The List of Participants in the 146th OCC Meeting is attached at **Annexure - I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 146<sup>th</sup> OCC meeting. He expressed satisfaction about large number of participation and stated that the trend should continue so that issues can be resolved through dialogue. He strongly noted the absence of representatives from Ar. Pradesh and Mizoram. Member Secretary, NERPC felicitated Shri A. Patir, GM, NERTS, POWERGRID on behalf of the forum.

Shri T.S. Singh, ED, NERLDC recalled the initial days with Shri A. Patir, GM and informed the forum that his expertise should be utilized by the forum and requested NERPC to look into the matter. He mentioned that it is rare to find a replacement to his caliber be in the field of protection, operation, communication etc., in the region. He wished him a happy retired life.

The forum put in record the numerous contributions made by him for the region. All members appreciated his humbleness, simplicity and his technical expertise.

Shri A. Patir, GM thanked the NERPC forum and said that the various sub-committees of NERPC has taught him many things both in technical & personal life. Further, he mentioned that he would be more than happy to extend any help to the forum whenever they face any problem.

Thereafter, Member Secretary requested Shri B. Lyngkhoi, Director/SE(O&P) to take up the agenda for discussion.

#### **A. CONFIRMATION OF MINUTES**

#### **CONFIRMATION OF MINUTES OF 145th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.**

The minutes of 145th meeting of Operation Sub-committee held on 19<sup>th</sup> June, 2018 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 26<sup>th</sup> June, 2018.

*The Sub-committee confirmed the minutes of 145th OCCM of NERPC as no comments/observations were received from the constituents.*

**ITEMS FOR DISCUSSION**

**B.1. ACTION TAKEN:**

**1. IMPLEMENTATION OF PROJECTS FUNDED FROM PSDF:**

The status as informed in 146th OCC:

State	Protection System	ADMS	Capacitor Installation	SAMAST**
Arunachal Pradesh	A/C opened. NIT to be floated soon. Could not be updated due to absence of representative	Revised DPR submitted	-	DPR submitted for Techno-Economic Appraisal.
Nagaland	Pack-A: completed Pack-B: Aug'18 Pack-C: Aug'18 Pack-D: Completed.	Revised DPR yet to be submitted	To re-submit proposal to NERPC for Study.	DPR submitted for Techno-Economic Appraisal
Mizoram	LOAs completed. First tranche of funds requisitioned. Could not be updated due to absence of representative	Revised DPR submitted	Appraisal Committee is yet to approve	DPR submitted for Techno-Economic Appraisal
Manipur	LOAs issued.	Revised DPR submitted	Submitted to NERPC for Study before sending to NPC/NLDC.	DPR submitted for Techno-Economic Appraisal
Tripura	Fund Released • 17.2 Cr. Tentative Completion by 31.12.2018	Revised DPR submitted	To submit proposal to NERPC for Study.	DPR submitted for Techno-Economic Appraisal
Assam	PLCC- tender evaluation complete. LOA to be issued after	Revised DPR submitted	-	DPR submitted for Techno-Economic Appraisal

	approval. Substation auxiliary and diagnostics tools - Tendering in process. All LOAs by Jul'18.			
Meghalaya	MePTCL- All LOAs awarded. Earthing Package Tendering in Progress. Balance items by July'18 MePGCL -UC submitted.	Revised DPR submitted	-	DPR submitted for Techno- Economic Appraisal

**Deliberation of the sub-Committee:**

Director/SE(O&P), NERPC informed that for ADMS some corrigendum needs to be submitted by all utilities ASAP. Member Secretary, NERPC opined that a Monitoring Group be formed for ADMS and SAMAST upon completion of tendering. Following Committees were finalized in connection with SAMAST implementation in NER:

**1. Committee for Contracts related activities:**

**Shri B. Lyngkhoi, Director-NERPC** Lead member and coordinator

Shri Kaushik Sharma -NERLDC

Representative from POWERGRID-NERTS

Representative from Meghalaya

Terms of reference:

- **Preparation of tender document**
- **Exploring option of QCBS**
- **Formulating procedure of floating tender and evaluation**
- **Procedure of State-wise placement of award**
- **Contract closing procedure**

**2. Committee for preparation of Software requirement specification (SRS) of AMR and Meter data processing software:**

**Shri M.K. Ramesh - NERLDC, DGM** Lead member and coordinator

Ms. Kritika Debnath - NERLDC

Shri S.K. Singh – NERTS POWERGRID

Shri T. Gidon - MePTCL

Terms of reference:

- **Preparation of SRS**
- **Reference of Specs of other Regions to arrive at best practice**

3. Committee for preparation of SRS of REA, DSM Accounting and Reactive Accounting software:

**Shri Abhijit Agarwal -NERPC** Lead member and coordinator

Shri Manas Protim Nath -NERLDC

Ms. K. Stella - MSPCL

Ms. L. Ritu - MSPCL

Terms of reference:

- **Preparation of SRS**
- **Reference of Specs of other Regions to arrive at best practice**

4. Committee for preparation of SRS of STOA, Scheduling and Reporting software:

**Shri Srijit Mukherjee -NERPC** Lead member and coordinator

Shri Ankit Jain -NERLDC

Shri Pranab Saha -AEGCL

Terms of reference:

- **Preparation of SRS taking into account Open Access Registry**
- **Reference of Specs of other Regions to arrive at best practice**

5. Committee for preparation of Technical specs of hardware (Servers, Computers and accessories) at SLDC:

**Shri Sadiq Imam - NERPC** Lead member and coordinator

Shri Tapobrata Paul - NERLDC

Sh. N. Romeo Singh - MSPCL

Sh. D.J. Lyngdoh - MePTCL

Terms of reference:

- **Preparation of Technical specs**
- **Reference of Specs of other Regions to arrive at best practice**

**6. Committee for preparation of Technical specs of 5 minute Meters:**

**Shri Srijit Mukherjee - NERPC** Lead member and coordinator

Shri S. Shadrudin - NERLDC

Sh. S.K. Singh - NERTS

Terms of reference:

- **Preparation of Technical specs**
- **Reference of Specs of other Regions to arrive at best practice**

The above committees would function under the supervision of SAMAST Group of NER already formed by NERPC Secretariat. It was decided that a common meeting of all the Committees would be convened by NERPC / SAMAST Group to kick-start the activity.

***The Sub-Committee noted as above.***

***Action: All state utilities/NERPC.***

**2. Outage of Important Grid Elements:**

Name of the Element	Name of Utility	Status as informed in 146th OCC
63MVAR Reactor at Byrnihat to replace with 80MVAR Reactor	MePTCL	SCM MoM yet to be issued.
400KV 80MVAR Bus Reactor at Palatana	OTPC	By Aug'18
DHEP Unit 2	NEEPCO	In service w.e.f. 24.05.2018. <b>To be dropped.</b>
400/220 kV, 315 MVA ICT-II at BgTPP	NTPC	In service w.e.f. 05.06.2018. <b>To be dropped.</b>
Repairing of R-ph bushing of 63MVAR L/R at Balipara for 400kV Balipara-Bongaigaon -II ( <i>out since 17.02.18</i> )	NERTS	By Nov'18
400/132kV 125MVA ICT-II at Palatana ( <i>out since 08.07.2018</i> )	OTPC	**

\*\*Manager, OTPC informed that the ICT tripped on 08.07.2018 on OSR operation. Test result from CPRI indicated high BDV value of oil sample from OLTC and BDV value of oil sample of Transformer was found within limits. OLTC oil was replaced and oil samples are sent to CPRI. Test result of new sample is yet to receive. The ICT would be charged on 20.07.2018 prospectively. Forum requested OTPC to identify the root cause (high BDV value of OLTC oil) and take appropriate actions to avoid outage of this element in future due to this issue. DGM(AM), NERTS apprised the forum that a

Oil Testing Facility has been set up at Misa S/S of NERTS. He requested all the utilities to make full use of the facilities for speedy testing and verified results.

**The Sub-Committee noted as above.**

**Action: All concerned utilities.**

**3. Furnishing of various data for reliable grid operation:**

Data regarding	<b>Status as of 146th OCC</b>	
DAS output for FRC calculation	<b>Event Date: 10.05.18; OTPC, DHEP and RHEP provided information. NERLDC once again requested all generators to provide DAS data at the earliest for FRC calculation.</b>	
Operating Procedures	<b>Items</b>	<b>Data submitted by</b>
	OP of States	Submitted only by AEGCL, MePTCL and TSECL
	OP of Transmission System	Not submitted by any constituents
	OP of Generating Stations	Not submitted by any generators
	OP of GIS	Not submitted by any constituents
Data related to Power Map.	<b>Items</b>	<b>Data submitted by</b>
	Communication (PLCC/OPGW/GPRSVSAT/Satellite)	NERTS, Meghalaya, Assam & Mizoram provided the data.
Patrolling report(s) for T/L**.	<b>No constituents have furnished the report</b>	

**The Sub-committee noted as above.**

**Action: All utilities as above.**

**4. Monitoring of Corrective actions as decided in PCC forum:**

<b>Name of the Element</b>	<b>Action to be taken</b>	<b>Name of Utility</b>	<b>Status as of 146th OCC</b>
132 kV Dimapur - Doyang 1 & 2 Lines	Installation of Numerical Relay at Doyang	NEEPCO	By Dec'18

AGTCCPP- LFO	AVR replacement	NEEPCO	By Oct'18
132kV PK Bari-Kumarghat	Installation of Line differential relay	NERTS	By Dec'18
132kV AGTCCPP-Agartala D/C.	Line differential relay to be installed	NERTS	By Dec'18
132kV PKBari	Installation of Numerical Relay under R&M ( <i>high priority</i> ). TSECL to divert NR to AGTCCPP.	TSECL	By Aug'18
132kV Rokhia-79Tilla D/C	DPR to be installed	TSECL	By Aug'18

**The Sub-committee noted as above.**

**Action: All utilities as above.**

#### 5. DIFFERENCE IN ACTUALS VS LGBR:

##### Energy Requirement:

Name of State	Apr18 (actual)	Apr18 (LGBR)	May18 (actual)	May18 (LGBR)
Ar. Pradesh	69.80	68.35	71.77	70.26
Assam	680.19	612.74	738.04	778.29
Manipur	64.99	64.76	68.18	67.46
Meghalaya	131.74	149.00	138.92	143.00
Mizoram	53.94	45.67	40.70	47.82
Nagaland	69.72	66.35	72.75	74.90
Tripura	155.05	99.18	101.52	98.38

##### Energy Availability:

Name of State	Apr18 (actual)	Apr18 (LGBR)	May18 (actual)	May18 (LGBR)
Ar. Pradesh	50.27	58.89	70.09	70.50
Assam	650.76	720.23	738.28	810.91
Manipur	70.23	76.30	95.07	86.53
Meghalaya	140.32	149.76	191.42	204.20
Mizoram	64.83	62.69	71.74	72.60
Nagaland	55.39	56.26	67.15	66.14
Tripura	276.86	267.05	252.31	281.99

##### Demand:

Name of State	Apr18 (actual)	Apr18 (LGBR)	May18 (actual)	May18 (LGBR)
Ar. Pradesh	130.38	141	128.33	145
Assam	1532.51	1447.42	1625.51	1665.49
Manipur	192.89	170.68	179.01	169.41
Meghalaya	307.28	320.10	370.59	334.40
Mizoram	98.37	94.60	95.98	94.60
Nagaland	155.71	128.56	147.06	140.94
Tripura	304.80	299.20	275.65	282.80

**Deliberation of the sub-Committee:**

Member Secretary, NERPC requested the members to monitor the deviation in actual vs LGBR and provide suggestions so that LGBR may be made more accurate.

**The Sub-committee noted as above.**

**Action: All SLDCs.**

**B.2. OPERATIONAL PERFORMANCE AND GRID DISCIPLINE DURING JUNE, 2018**

As per the data made available by NERLDC, the grid performance parameters for June, 2018 are given below:

**NER PERFORMANCE DURING JUNE, 2018**

States	Energy Met (MU)		w.r.t. May,18 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. May,18 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In Jun,18
	Jun-18	May-18		Jun-18	May-18		
Ar. Pradesh	62.78	64.83	-3.16	63.73	65.75	-3.07	-1.49
Assam	897.70	711.96	26.09	936.53	752.57	24.44	-4.15
Manipur	65.26	65.95	-1.05	66.32	66.97	-0.97	-1.60
Meghalaya	149.63	144.44	3.59	149.63	144.44	3.59	0.00
Mizoram	53.00	50.36	5.24	53.66	51.16	4.89	-1.23
Nagaland	67.87	62.87	7.95	76.21	71.21	7.02	-10.94
Tripura	121.86	107.28	13.59	124.75	112.51	10.88	-2.32
<b>Region</b>	<b>1418.10</b>	<b>1207.70</b>	<b>17.42</b>	<b>1470.82</b>	<b>1264.62</b>	<b>16.31</b>	<b>-3.58</b>

States	Demand Met (MW)		w.r.t. May,18 % inc (+) /dec (-)	Demand in (MW)		w.r.t. May,18 % inc (+) /dec (-)	% inc (+) /dec (-) of Demand vs met. In Jun,18
	Jun-18	May-18		Jun-18	May-18		
Ar. Pradesh	133	123	8.13	138	138	0.00	-3.62
Assam	1750	1596	9.65	1782	1626	9.59	-1.80
Manipur	172	172	0.00	179	179	0.00	-3.91
Meghalaya	326	368	-11.41	326	371	-12.13	0.00
Mizoram	93	87	6.90	103	96	7.29	-9.71
Nagaland	129	119	8.40	129	147	-12.24	0.00
Tripura	276	276	0.00	281	276	1.81	-1.78
<b>Region</b>	<b>2564</b>	<b>2611</b>	<b>-1.80</b>	<b>2640</b>	<b>2709</b>	<b>-2.55</b>	<b>-2.88</b>

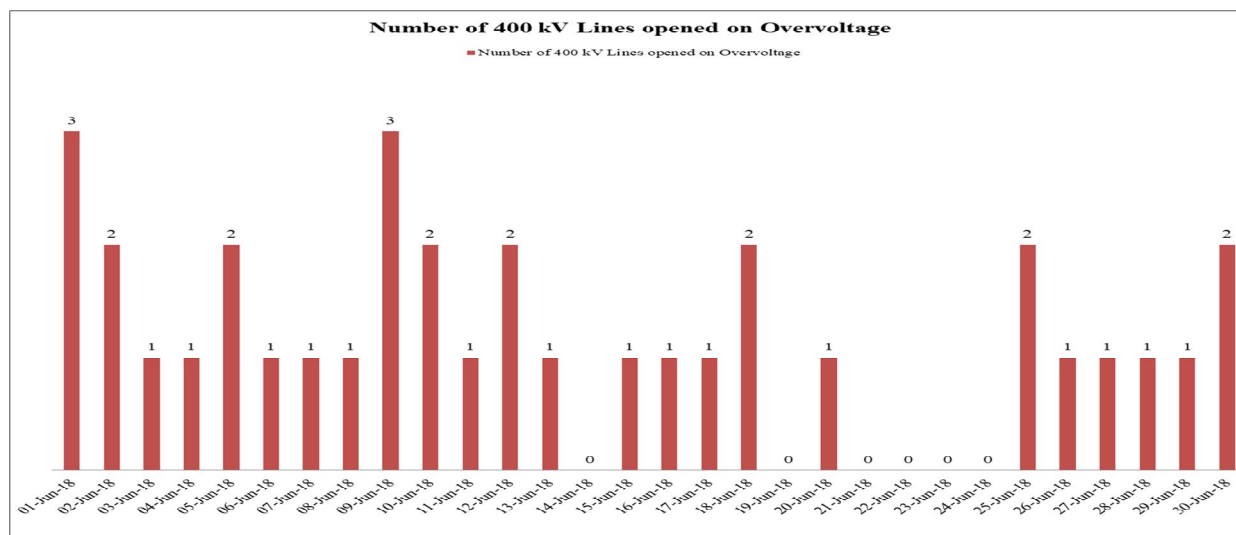
**REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU**

**AVERAGE FREQUENCY (Hz)**

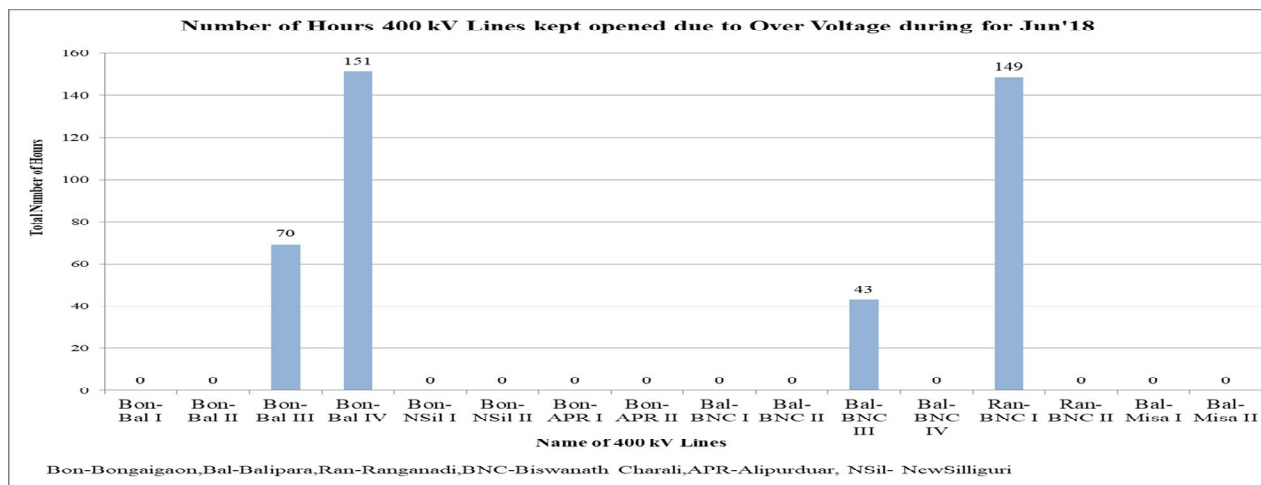
Month---->	Jun-18	May-18	Month---->	Jun-18	May-18
Total Generation in NER (Gross)	1623.369	1450.399	% of Time	% of Time	
Total Central Sector Generation (Gross)	1221.425	1149.117	Below 49.9 Hz	11.84	22.52
Total State Sector Generation (Gross)	401.944	301.282	Between 49.9 to 50.05 Hz	76.96	70.06
<b>Inter-Regional Energy Exchange</b>			Above 50.05 Hz	11.18	7.43
(a) NER-ER	<b>38.21</b>	<b>113.72</b>	Average	49.98	49.95
(b) ER-NER	<b>307.54</b>	<b>192.00</b>	Maximum	50.24	50.22
(c)NER-NR	<b>309.33</b>	<b>185.91</b>	Minimum	49.60	49.57
(d)NR-NER	<b>0.00</b>	<b>0.00</b>			
© Net Import	-40.00	-107.63			

**Deliberation of the sub-Committee:**

NERLDC gave a presentation on the grid performance for the month of June'18. NERLDC also highlighted that Daily, Weekly and Monthly Voltage Deviation Report, Frequency Deviation Report and System Reliability Report for June'18 are already mailed to all the constituents for necessary actions. Further it was informed that members may access these reports from NERLDC website under the tab CERC KPI Reports. NERLDC informed the forum about the number of lines kept open on high voltage. Forum express concern about the same and requested the generators to absorb MVAR. NERLDC again requested for early restoration of reactors which are under long outage and commissioning of new reactors at the earliest as mentioned in Sl. No. B.1.2 and C.1 so that it does not require to open lines for maintaining voltage profile within IEGC band. The plots of 400 kV lines opened for maintaining voltage profile within IEGC band during June'18 is mentioned below:



**Outage Hours: For 400 kV Lines**



The Sub-Committee noted as above.

**ITEMS FOR DISCUSSION**

**C. OLD ITEMS**

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

During 146th OCC meeting, the status as informed by different beneficiaries is as follows:

S N	Items	Status as given in 145th OCC Meeting		Status as given in 146th OCC Meeting	
		Timeline for completion	Furnishing of detail parameters	Timeline for completion	Furnishing of detail parameters
<b>a. New Elements</b>					
1	400/220kV, 315 MVA ICT-1 of NTPC at Bongaigaon	By June'18	To be submitted to NERLDC.	By Oct-Nov'18	To be submitted to NERLDC.
2	Kameng HEP of NEEPCO two units (2 x 150 MW) Next two units (2x150 MW)	Dec'18	Already submitted.	Dec'18	Already submitted.
3	Pare HEP of NEEPCO (2 x 55 MW)	Unit#II - DoCO 21.05.2018 Unit #I - DoCO 28.05.2018.	Not applicable.	CoD completed. <b>To be dropped.</b>	Not applicable.

4	400 kV D/C Silchar - Melriat line of PGCIL	Aug'2018	To be submitted to NERLDC.	Work held up due to not allowing POWERGRID to carryout diversion of State Line by P&E Mizoram.	To be submitted to NERLDC.
5	132kV Monarchak – Surjamaninagar D/C of TSECL	SCM MoM yet to be issued.	To be submitted to NERLDC.	RoW issue resolved. By Dec'18	To be submitted to NERLDC.
6	SLDCs (Ar. Pradesh, Manipur, Mizoram, Nagaland)	Nagaland-DoCO to be finalized Ar. Pradesh**, Manipur - CoD Mizoram-ToC date to be confirmed. Except DG set(WIP ), all other works are completed. Additional supply of RTUs & minor pending works by 4months.	Not applicable.	Nagaland**-DoCO to be finalized Ar. Pradesh, Manipur - CoD Mizoram-ToC date to be confirmed. Except DG set(WIP ), all other works are completed. Additional supply of RTUs & minor pending works by 4months.	Not applicable.
7	400/220 kV 315 MVA ICT-II at Bongaigaon	Modification required in GIS Hall. Oct'2018	To be submitted to NERLDC.	Modification required in GIS Hall. Oct'2018	To be submitted to NERLDC.
8	220/132 kV, 160MVA ICT-II at Balipara	ICT#II - delayed, Sept'18	To be submitted to NERLDC.	ICT#II - delayed, Sept'18	To be submitted to NERLDC.
9	220/132 kV, 1x160 MVA ICT with GIS Bay at Kopili	Sept, 2018.	To be submitted to NERLDC.	Sept, 2018.	To be submitted to NERLDC.
10	400/132 kV, 1x315 MVA ICT-III at Silchar	By June-18 through Bus #2	To be submitted to NERLDC.	Charged on 16.07.2018. After loading 24hrs DoCO	Already submitted.

				to be finalized.	
11	Replacement of 2x315 MVA ICTs with 2x500 MVA ICTs at Misa (PG)	ICT-I : Nov'18 ICT-II : Dec'18	To be submitted to NERLDC.	ICT-I : Nov'18 ICT-II : Dec'18	To be submitted to NERLDC.
12	400 kV Silchar – Misa D/C	2019	To be submitted to NERLDC.	2019	To be submitted to NERLDC.
13	1x125 MVAR Bus Reactor at 400 kV at Balipara	Sept, 2018(LOA date).	To be submitted to NERLDC.	Sept, 2018(LOA date).	Already submitted.
14	1x125 MVAR Bus Reactor at 400 kV Bongaigoan	Sept, 2018(LOA date).	To be submitted to NERLDC.	Sept, 2018(LOA date).	Already submitted.
15	Tuirial HEP of NEEPCO	Agreed date of Commercial operation - 27.04.2018 for Unit#I&II	Already submitted to SLDC Mizoram.	CoD completed successfully. To be dropped.	Already submitted to SLDC Mizoram.
16	33kV bay at 220kV Mariani(AS) S/Sn	Security Paid. Agreement made. Meter to be installed by ASEB.	Not applicable.	Security Paid. Agreement made. Meter to be installed by ASEB.	Not applicable.
17	33kV Tezu-Tezu(AP)	Completed long back. <b>Item to be dropped</b>	Not applicable.	<b>Item to be dropped</b>	Not applicable.
18	33kV bay for 132kV Badarpur(PG) S/Sn	APDCL to submit revised estimate as earlier estimate was based on 33kV feeder from same source.	Not applicable.	APDCL to submit revised estimate as earlier estimate was based on 33kV feeder from same source.	Not applicable.
19	Dedicated 33kV feeder at Khliehriat Substation from Lumshnong.	MePDCL requires ROW clearance certificate from POWERGRID	Not applicable.	MePDCL requires ROW clearance certificate from POWERGRID	Not applicable.

		PGCIL taken up with district authority.		PGCIL taken up with district authority.	
20	Construction of 132 kV Imphal (PG) - Yurembam III & IV lines with high capacity conductor by MSPCL	RoW problem. Tentative Completion: Jul'18	To be submitted to NERLDC.	RoW problem#. Tentative Completion: Jul'18	To be submitted to NERLDC.
21	LILO of 132kV Aizawl-Jiribam at Tipaimukh by MSPCL	Completed.	Not applicable.	Completed but telemetry not in place.	Already submitted.
22	132kV Ranganadi - Chimpu S/C of DoP Ar. Pradesh	June'18	Already submitted	July'18 - IR value for 1 ph very low.	Already submitted
23	132kV Tezu - Namsai S/C	Charged. CoD by June'18	Already submitted	Line Charged on 11.06.18 and downstream elements charged on 03.07.2018.	Already submitted
24	MW Vacation OPGW project	All nodes are reporting. Srikona-Silchar-Badarpur-Kolasib-Aizwal completed. DOCO 01.04.18. Rectification by Sept18.	Not applicable.	All nodes are reporting. Srikona-Silchar-Badarpur-Kolasib-Aizwal completed. DOCO 01.04.18. Rectification by Sept18.	Not applicable.
25	VOIP Exchange Project under NER FO exp/Add coom OPGW	All SLDC & NERLDC is now connected over VOIP Exchange. Completed in 31.03.2018	Not applicable.	All SLDC & NERLDC is now connected over VOIP Exchange. Completed in 31.03.2018	Not applicable.
26	NER FO Expansion/Add req of OPGW	Present Status: Out of the list as per 18th RPC:	Not applicable.	Present Status: Out of the list as per 18th RPC:	Not applicable.

		<p>WIP: Silchar- Melriat, SMN-Palla, SM-79T, 79Tila-rc Nagar, Badarpur- Jiribam,</p> <p>Completed OPGW: Khandong- Haflong, Doyang- Dimapur, Doyang- Mokokchung (St) Mokokchung -Mariani, Mariani-PG- Kathalguri.</p> <p>Equip: Supplied/ Comm pending</p>		<p>WIP: Silchar- Melriat, SMN-Palla, SM-79T, 79Tila-rc Nagar, Badarpur- Jiribam,</p> <p>Completed OPGW: Khandong- Haflong, Doyang- Dimapur, Doyang- Mokokchung (St) Mokokchung- Mariani, Mariani-PG- Kathalguri.</p> <p>Equip: Supplied/ Comm pending</p>	
27	URTDSM project	<p>Supply &amp; Installation completed:1 3/14 location 18nos. PMUs in 4 locations integrated</p>	Not applicable	<p>Supply &amp; Installation completed:1 3/14 location 18nos. PMUs in 4 locations integrated</p>	Not applicable
<b>b. Elements under breakdown/upgradation</b>					
28	Up-gradation of 132 kV Lumshnong-Panchgram line	To be approved by Techno-Economic sub-group for funding from PSDF.	Not applicable.	Entire line upgradation to be taken up by MePTCL for funding from PSDF. Revised DPR to be submitted.	Not applicable.
29	Switchable line Reactors at 400kV Balipara & Bongaigaon	Aug'18	To be submitted to NERLDC.	Bongaigaon- Aug'18 Balipara - Aug'18	To be submitted to NERLDC.

30	PLCC Panels at Loktak end of Loktak - Ningthoukhong 132 kV feeder and Loktak - Rengpang 132 kV feeder	Oct'2018	Not applicable.	Oct'2018	Not applicable.
31	LILO of 132kV Ranganadi - Itanagar (Chimpu) at Pare of Ar. Pradesh	Erection works at Ranganadi, Pare and Chimpu complete. Tentative CoD June'18	To be submitted to NERLDC.	LILO completed. 132kV RHEP-Pare HEP: DoCO 06.07.2018 132kV Pare-Chimpu: DoCO 07.07.2018	Already submitted to NERLDC.
32	Re-conductoring of 132kV Umiam Stg#I - Umiam Stg-III	DPR prepared and submitted for approval	Not applicable.	DPR prepared and submitted for approval	Not applicable.
33	Upgradation of ULDC FO node	Target completion : June 2018	Not applicable.	Target completion : June 2018	Not applicable.
34	Upgradation of 132kV Silchar-Imphal to 400kV	August'18	To be submitted to NERLDC	Oct'18	To be submitted to NERLDC

**Deliberation of the sub-Committee:**

\*\*EE,SLDC, DoP Nagaland informed the forum that foundation works for DG set in SLDC Nagaland has been completed in April'18. Since the DG set is lying in SLDC campus since 7 months, he requested NERTS to commission the DG set as early as possible. NERTS agreed to do the needful.

# DGM(AM), NERTS opined that since MSPCL is facing RoW problems existing D/C tower of 132kV Imphal-Yurembam D/C may be upgraded and used. He also informed that 132kV Imphal-Yurembam Ckt#II is to be upgraded by MSPCL, pending which utilization of Ckt#I on HTLS will get limited.

***The Sub-Committee noted as above.***

***Action: All state utilities/central utilities/NERPC.***

<b>D. NEW ITEMS</b>
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**D.1 Generation Planning (ongoing and planned outages)**

NEEPCO/NHPC may kindly intimate the availability for hydro stations:

Generating Station	Units running	MW	MU	Reservoir
Khandong	2		39.75	724.05
Kopili-II	1			
Kopili	4		237.5	606.87
Ranganadi	2		Subject to inflow	
Doyang	2		19.22	318.25
Loktak	3		122.50	768.03
Pare	2	-	Subject to inflow	

***Hydro planning***

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

***Deliberation of the sub-Committee:***

***The Committee discussed and approved the proposed shutdown by Generating Stations and the same has already been uploaded in the website of NERPC.***

**D.2 Outage Planning Transmission elements**

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

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

Planned shutdown approved by NERPC shall be considered for implementation by NERLDC on D-3 basis. If an outage is to be availed on say 10<sup>th</sup> of the month, the shutdown availing agency would reconfirm to NERLDC on 7<sup>th</sup> of the month by 10:00 Hr. This practice is necessary to ensure optimal capacity utilization and the time required for associated system study/coordination by/amongst RLDC/NLDC.

In 134th OCCM, it was decided that all communication related shutdown be approved in OCC forum only.

In 142nd OCCM, Director/SE(O&P), NERPC suggested that henceforth shutdown list may be prepared under following categories:

- (i) New Construction Related Shut Down
- (ii) Existing System Improvement Related Shut Down.
- (iii) Existing System Normal Maintenance Related Shut Down
- (iv) Communication Related Shutdown
- (v) R&U works Related Shut Down under PSDF

The forum further decided that the modalities of communication related shutdown should be finalized. Members requested NERPC to invite POWERGRID telecom in next OCCM alongwith with officials (handling communication issues) from all utilities for this purpose.

In 143rd OCCM, , NERPC once again reiterated that shutdowns which are not being availed will not be entertained in the following month and would only be accorded in the next to next month. He hoped that in view of greater complexity in grid operation due to communication issues, the list of important links would be finalized by NERLDC very soon. He also requested NERTS to impress upon POWERGRID Telecom to attend the next OCCM positively.

**Deliberation in the Meeting:**

NERLDC highlighted that OCC forum approves the S/D after lots of discussion but it is observed that some of the shutdowns are not being availed. Details of Shutdown not availed and shutdowns applied on D-3 basis is as below:

Total S/D approved	Total S/D availed	Total S/D not availed	Total S/D availed on D-3 basis	Total S/D not applied on D-3 basis
100	75	25	84	16

NERLDC highlighted that the inordinate delay in revival of elements under S/D for ISTS licensees is coming very high which is affecting the secure operation of the grid. Details for the month of June'18 are as below:

Transmission Licensee	Total Delay	Avg. Delay	Max. Delay
POWERGRID	60 Hrs 47 Min.	1 Hrs 44 Min	6 Hrs on 20th June'18 for +/- 800 kV BNC – Agra Pole 2

NETC	8 Hrs 57 Min	1 Hrs 16 Min	2 Hrs 8 Min. on 1st Jun'18 and 2nd Jun'18 for 400 kV Azara -Bongaigaon line
ENICL	Nil	Nil	Nil

NERLDC requested ISTS licensees to return the element under shutdown as per approved schedule.

NERLDC also informed the forum that from Shutdowns which are not applied on D-3 basis shall not be allowed henceforth. The forum agreed to the same.

***The sub-Committee discussed and approved the proposals received from the constituents regarding transmission elements and generating units for July,2018 - August,2018 and the same has already been uploaded in website of NERPC.***

**D.3 Estimated Transmission Availability Certificate (TAC) for the month of February, 2017 to April, 2018:**

NETC and POWERGRID have submitted the outage data for the month of February, 2017 to April, 2018. So the attributability of outage of the said elements may please be finalized.

In 141st OCCM, DGM (MO), NERLDC stated that outages would be made attributed to respective transmission licensees due to absence of documentary evidence during verification stage. NERPC secretariat would take due care accordingly. After detailed deliberation it was decided that Transmission Licensees (POWERGRID, NETC etc) would provide the relevant documents during verification process itself and no plea would be honoured after that.

For streamlining the process of Verification of Transmission Element Availability, a draft Procedure is prepared by NERLDC and NERPC.

Constituents of NER are requested to send comment and suggestion for this document by 28th Mar'18. This document will be finalized by 31st Mar'18.

In 142<sup>nd</sup> OCCM, NERLDC informed the forum that the draft procedure has been prepared and the same shall be circulated shortly. NERPC and NETC were requested to provide their comments on the draft Procedure by 31<sup>st</sup> March'18. The forum once again advised NETC & POWERGRID to submit data in a time bound manner as decided previously.

In 143rd OCCM, it was decided that an element-wise cumulative tripping details attributable to the licensees for the current FY has to be submitted by the respective transmission utilities on monthly basis along with outage data. Then after all prudence checks by NERLDC/NERPC, once the outage is certified by NERPC, final cumulative tripping details attributable to the transmission licensee would be published by NERPC.

In 144<sup>th</sup> OCC meeting , NERPC asked POWERGRID and NETC to comment on the procedure. The procedure will be finalized in the next meeting.

Member Secretary, NERPC informed the forum that 3 times reminder may be sent for any document for which comments were sought. If no comments are still received, the document will be considered as final.

**Deliberation in the Meeting:**

The Sub-Committee ratified the attributability from February, 2017 to April, 2018.

***The Sub-Committee noted as above.***

***Action: Concerned transmission utilities/NERLDC/NERPC***

**D.4 Assessment of Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) by SLDC on respective Inter-State Transmission Corridor**

Updated PSS/E Base Cases have been mailed to all the SLDCs on 04.07.18. All SLDCs are requested to assess the Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) for the month of June'18 using these cases, and submit the study cases and results to NERLDC by 26.07.18.

NERLDC has assessed the state control area wise, state subsystem wise and group of control-area wise TTCs for NER Grid, on behalf of SLDCs of NER. The study results will be presented in the meeting. SLDCs are requested to check the TTC of their control areas as computed by NERLDC and give comments, if any, by 26.07.18.

If no comments received from any SLDCs of NER, TTC, ATC & TRM figures of State control area and group of control areas as assessed by NERLDC will be considered as final and may be uploaded on website.

As per discussions in 122<sup>nd</sup> OCC meeting of NERPC, all SLDCs of NER may host the assessed TTC / ATC / TRM figures on their website for information dissemination.

**Deliberation in the meeting**

EE,SLDC, DoP Nagaland informed that SLDC, Nagaland would give presentation on ATC/TTC Calculation in the 147<sup>th</sup> OCC.

NERLDC has assessed TTC of each state control area of NER, each state subsystem on behalf of SLDCs of NER and group of control-area wise TTCs for NER Grid for the month of August'18:

States	Off Peak	Peak
Arunachal	188	183
Assam	1549	1582
Manipur	257	254
Meghalaya	160	160
Mizoram	116	116
Nagaland	164	168
Tripura (including Bangladesh)	110	82

***The Sub-Committee noted as above.***

***Action: All SLDCs.***

**D.5. SPS mock testing & existing SPS scheme related:**

The 138th OCC forum requested NERTS to prepare a draft sequence of operation for each SPS and present in next OCC for ratification. The date for SPS 2 and SPS 3 mock testing will also be finalized in next OCC Meeting.

The 140<sup>th</sup> OCC forum opined that NERPC/NERLDC may find some experts from the region to solve this long pending issue and if not, the same may be called from other region. The forum requested OTPC to intimate the details of their action plan for addressing the issues at their end pertaining to the successful operation of SPS-2 & 3 at the earliest.

NERPC vide letter dated. NERPC/SE(O)/OCC/2018 dated 08.02.2018 has requested OTPC to implement the changes as early as possible.

OTPC vide mail dated. 26.02.18 has intimated that Modified SPS-2&3 has been taken into service w.e.f. 26.02.18(10:45hrs) with 15ms time delay at OTPC end.

Since both SPS-2& 3 are operational within the stipulated time delay the forum may approve that grant of any shutdown related to Palatana ATS would be unconditional of generation backing down at Palatana GBPP.

In 142<sup>nd</sup> OCC GM,NERLDC informed that though currently s/d of Palatana ATS is being allowed without generation backing down, a mock test would be very fruitful. The forum after detailed deliberation requested NERPC to schedule mock test with representatives from NERTS, TSECL, OTPC, NERLDC & NERPC at the earliest.

In 143<sup>rd</sup> OCCM, NERPC informed that testing would be carried out tentatively in the first week of May,2018. He requested AEGCL, MeECL, NERTS, OTPC and NERLDC to depute concerned personnel for the said purpose.

In the Special Meeting on SPS-3 held at NERPC Shillong on 03.05.2015, the matter of mock testing was discussed. Members suggested that after implementation of the procedure on 07.05.2018, the date of mock testing may be finalized in the 144<sup>th</sup> OCCM.

In 144<sup>th</sup> OCCM DGM, OTPC informed that on 10.05.2018 SPS-3 signal on particular PLCC panel was received 40 times consecutively. Generator outage could be averted because SPS-3 was turned off at Palatana end. He stated that repeated receipt of spurious signals at OTPC end indicates non-reliability of SPS-3 and requested the forum to allow OTPC to turnoff SPS-3 till RCA for the spurious signals are identified and resolved.

DGM(AM), NERTS informed the following:-

- The incident on 10.05.2018 was not spurious at Palatana end as increment was recorded in Silchar also. The exact reason will be intimated to NERPC/NERLDC shortly.
- The events preceding 10.05.2018 were spurious as signals were only received at Palatana with no counter increment at Silchar. From 07.05.2018 scanner has been put in service by interchanging the permissive and DT Inter-trip channels with SPS 3 disconnected at Palatana end. The channel is kept on observation for any spurious signal for further needful.
- He assured that the issue of DT being sent due to BCU restart will be attended shortly once OEM visits the site.

GM, NERLDC further informed that Palatana GBPP tripped around 08:50hrs on 11.05.2018 due to triggering of SPS-2. This is supposedly due to fault in the both the

400kV Palatana-Silchar-I&II. However the exact cause is yet to be ascertained. He requested that timeline for SPS-3 activation at Palatana be decided by the forum.

After detailed deliberation it was decided that by 30.05.2018 NERTS would resolve the issues leading to generation of anomalous SPS-3 signal from Silchar. Subsequently after confirmation OTPC would turn on SPS-3 at Palatana. NETC was requested to increase patrolling and regular maintenance operation(s) for Palatana evacuation corridor(i.e. 400kV Palatana-Silchar I&II, 400kV Silchar-Byrnihat and 400kV Silchar-Azara). Further it was decided that in the intervening period 400kV Silchar-Byrnihat and 400kV Silchar-Azara shutdown would be decided on a case to case basis.

On 15.05.2018 NERTS while working on some filter logic implementation at Silchar S/S (for SPS-3), DT for 400kV Palatana-Silchar -II was sent to Palatana. This happened while Line-I was under approved shutdown, resulting in SPS-2 operation at Palatana. Subsequently NERTS informed that any rectification works for SPS-3 at Silchar S/S under live line conditions would result in the following:-

1. Sending of DT signals of Individual line( Palatana-1 &2 ).
2. Sending of SPS2 signal.

All these undesired events are possible due to congested wiring of all Signal wiring in Palatana 2 relay panels and Palatana 1 Ch- 2 PLCC panels at Silchar substation.

To resolve the stalemate a meeting was held at NERPC.

In 146<sup>th</sup> OCCM Director/SE(O&P), NERPC stated that creation of separate asset would streamline the scheme and prevent any untoward incident in the future. The approximate cost of • 90 lakhs may be shared by all Utilities of NER.

Members accorded in-principle approval to the suggestion of Director/SE(O&P), NERPC and requested NERPC to take up the matter in next TCC/NERPC Meetings for cost sharing. However, for speedy implementation the forum requested OTPC to procure on behalf of all the beneficiaries, the cost of which would be reimbursed later on. OTPC requested POWERGRID, NERTS to provide technical support, if required, for the same and POWERGRID agreed.

NERLDC highlighted about the disturbance in Southern part of NER due to tripping of 400 kV Silchar-Azara and 400 kV Silchar- Byrnihat and requested the forum to switch ON SPS-3 at Palatana end. NERLDC also told that due to rainy seasons, the 400 kV Silchar-Azara and 400 kV Silchar- Byrnihat is prone to trippings which can again lead to disturbance.

The forum decided that until procurement of new assets, SPS will be in OFF condition and requested to expedite the procurement of new assets.

**Deliberation in the meeting**

Sr. Manager, OTPC informed that a team from OTPC had visited Silchar S/S of NERTS on 28.06.2018 to explore the possibility of putting SPS-3 in service.

The Key Observation perceived during visit:

- 400/132 KV 315 MVA ICT-3 commissioning job is under progress, was planned to charge on 29th June 2018, not charged till date.
- 220V DC SY control, supply was upgraded from 850 Ah to 1250 Ah in order to incorporate the controls of to be commissioned new ICT-3 and 400 KV GIS.
- PGCIL has completely transformed the SPS-3 logics from hard wire to software logic in SCADA, however the logic is not checked as SPS-3 is disable condition from Palatana end.
- Since commissioning activities are in progress for 400 KV GIS and ICT-3 at Silchar SS, Data and logics for upcoming systems are uploaded in SCADA on regular bases during uploading new Data and logics they need to restart the system so all the existing and upcoming BCU get restart, among all BCU, 400 KV Palatana line-1 BCU suspected to send DT signal to palatana via 400 KV line (Suspected).

He suspected that due to BCU restart SPS-3 false signal is being generated at Silchar S/S. So, the same may be monitored and if found correct SPS-3 logic may be shifted to BCU of 400kV Palatana-Silchar Line I.

DGM(AM), NERTS stated that after taking into account of all the different mal-trippings due to triggering of SPS-3, creation of separate asset was suggested. He informed that there were incidences of SPS-3 triggering at Palatana due to BCU restart at Silchar, but there were also incidences where there was no signal generation at Silchar but receipt at Palatana.

Members took note of the findings of the OTPC & NERTS team and appreciated the initiative of OTPC. The forum requested OTPC/NERTS to expedite the commissioning of the new asset ASAP in line with discussion in 145<sup>th</sup> OCC meeting.

The forum decided to form a committee comprising of members from OTPC, PGCIL, POSOCO & NERPC to look into the matter viz. BCU replacement, Changing of SPS 3 Channel to other circuit, checking of SPS-3 logics in SCADA etc. and submit report

for taking further decision of implementing SPS 3 Scheme with existing asset. The committee visit date to be finalized soon for any date after 2nd August 2018.

***The Sub-Committee noted as above.***

***Action: OTPC/NERTS/NERPC/NERLDC.***

#### **D.6. Update on Real Time Energy Assessment for Effective Grid Management:**

In 139<sup>th</sup> OCCM, CDAC representative stated that they would require the proprietary protocol from the meter manufacturer(s) to proceed further with the Project. DGM(MO), NERLDC explained that as per practice followed in other Regions like NR, ER etc., AMR provider, Meter manufacturer and Powergrid sign a tripartite agreement to enable passing of the protocol to AMR provider. A sample of draft agreement in ER (TCS is AMR provider) was provided to CDAC and it was advised that CDAC should initiate process and circulate a draft agreement for the present case. CDAC agreed to do the needful and stated that they would develop protocol converter accordingly.

CDAC has furnished the draft tripartite agreement which is to be signed between CDAC, POWERGRID-NERTS and meter manufacturer(s).

In 140<sup>th</sup> OCCM, NERPC intimated that the process of signing tripartite agreement between CDAC, POWERGRID and L&T was in progress. He requested NERTS to expedite the matter.

In 141<sup>st</sup> OCCM, all the SLDCs confirmed the receipt of server at their premises. DGM,SLDC,AEGCL informed that static IP and SIMs have been procured by them.

In 143<sup>rd</sup> OCCM, NERPC informed that tripartite agreement has been signed and protocol would be handed over by 21.04.2018.

In 144<sup>th</sup> OCCM, Director/SE(O&P), NERPC informed that the protocol has been handed over and CDAC has initiated subsequent works.

In 145<sup>th</sup> OCCM Director/SE(O&P), NERPC informed that CDAC would start field trials for Assam by June'18.

#### **Deliberation in the meeting**

Director/SE(O&P), NERPC informed that amongst selected 120 locations, 90 locations devices are to be installed in the first phase and remaining 30 in the second phase.

***The Sub-Committee noted as above.***

***Action: CDAC.***

**D.7. Recording of operational instructions over VOIP in RLDC:**

As per 139th OCC discussion establishment of recording system for all real time instructions and conversations thro' VOIP network was supposed to be established within Feb'18. It is very important to establish the recording system at the earliest as all verbal communication/ conversations among RLDCs, SLDCs and stations are getting lost. Recording status at SLDC also may be discussed.

In 142nd OCCM, Manager, NERTS informed that re-tendering for DONGLE is in process and order would be placed by Mar'18/ April'18. Delivery would be by May'18/ June'18.

In 143rd OCCM, NERTS informed that LOA would be done by May'18 and supply by June'18/July'18.

In 144<sup>th</sup> OCCM, NERTS informed that LOA for DONGLE ( facilitating voice recording facility in existing VOIP Exchange console at NERLDC) would be done by May'18 and supply by June'18/July'18.

**Deliberation in the meeting**

NERTS informed that LOA has been placed and supply would be done by Aug'18.

***The Sub-Committee noted as above.***

***Action: NERTS***

**D.8. Integration of new RTUs at RHEP:**

GE supplied RTU at RHEP will be provided for accommodating the two new 132 kV extension bays being constructed by us at RHEP in the first-second week of March 2018. Integration of new RTU with existing RTU at RHEP and NERLDC control centre shall be required. Hence special permission may be required through appropriate forum in this regard.

In 142<sup>nd</sup> OCCM, Sr. Manager, NEEPCO informed that RTU procurement is under tendering process and would be commissioned by Dec'18.

In 143<sup>rd</sup> OCCM, Sr. Manager, NEEPCO informed that as per discussion in 9th NETeST forum for 132kV RHEP-NDTL line, a team from NERLDC, NERTS would visit RHEP on 24.04.18 to sort out the RTU problem. For 132kV RHEP-Chimpu line he informed that RTU is under procurement and same would be installed by Dec'18. However NERLDC requested to install RTU at RHEP at the earliest possible time as current RTU is not reliable, hence creating grid monitoring problem.

A team from NERLDC and NERTS visited RHEP on 27.04.2018 and made the following recommendations:-

- The S900 RTU may be replaced with new C264 RTU or existing bays may be integrated with installed C264 RTU.
- The old transducers for existing bays are to be replaced with MFTs.

*NEEPCO has agreed to integrate the existing bays with installed C264 RTU.*

In 144<sup>th</sup> OCCM DGM(SO-I), NERLDC informed the forum that at present CB position & other data are reporting from RHEP. However the present S900 RTU is not reliable and needs resetting frequently, therefore he requested NEEPCO to expedite the work of integrating existing bays with installed C264 RTU. Sr. Manager, NEEPCO informed that due process has been initiated and work is expected to be complete latest by Dec'18. The forum requested NEEPCO to finish the works by Aug'18.

In 145<sup>th</sup> OCCM, Sr. Manager, NEEPCO informed that works are going on at an accelerated pace and tentative completion is Oct'2018. NERLDC requested that integration be completed as early as possible, since Ranganadi is a very important station and unavailability of data impairs grid operation.

#### **Deliberation in the meeting**

Sr. Manager, NEEPCO informed that works would be complete by Dec'18. After detailed deliberation forum decided to review the agenda under item **C.1**.

***The Sub-Committee noted as above.***

***Action: NEEPCO***

#### **D.9. Ensuring proper functioning of Under Frequency Relays(UFR) & df/dt Relays:**

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

In 142<sup>nd</sup> OCCM, ,NERPC informed that as mandated periodical inspection of UFR needs to be carried out. In this regard he requested help of NERTS by providing suitable kits.

DGM(AM),NERTS stated that Frequency Injection Kit is available in PGCIL stations and any logistical help may be provided. He further requested that an action plan in this regard may be devised and handed over for future course of action.

In 144<sup>th</sup> OCCM DGM(AM), NERTS requested that a detailed schedule be prepared and circulated to concerned constituents for nomination of members. , NERPC stated that the detailed schedule location wise would be prepared and circulated by NERPC forthwith.

A detailed schedule has been prepared location wise. Utilities may kindly nominate members and finalize date(s) for inspection.

In 144<sup>th</sup> OCCM Sr. Manager, NEEPCO informed that AGTCCPP Extn only has PSS but it is not enabled. The same would be done while commissioning of DAVR for AGTCCPP-GTGs. He requested NERPC to modify the schedule accordingly.

DGM(AM), NERTS opined the following w.r.t. UFR and PSS inspection:-

- Testing procedure is to be finalized beforehand. If the scheme is integrated in NR then relay to be taken out of service. Further OMICRON kit is required, which is available in select locations only and is not recommended for movement over longer distances.
- Dates need to be assigned location wise. This would enable nomination from all utilities.
- Also protection audit may be combined for fruitful outcome.

After detailed deliberation the forum decided that NERPC would in consultation with NERTS & NERLDC prepare the completed schedule and procedure. In the Special Meeting at NERPC on 28.05.2018 the UFR inspection procedure was finalized.

In 145<sup>th</sup> OCCM DGM(AM), NERTS opined that 1/3 rd UFR nos may be inspected by covering Assam, Meghalaya and Tripura in July'18 itself. The forum requested NERTS would arrange all logistics and transport for the inspection. The forum approved the suggestion and requested NERPC to draw up a fresh schedule and circulate the same forthwith.

Regarding provision of OMICRON Relay Testing Kit, each of the transmission utilities of Assam and Tripura were requested to confirm availability.

NERLDC requested the forum to conduct third party audit of the substations which will be visited during the inspection also. The members agreed to the same.

**Deliberation in the meeting**

Director/SE(O&P), NERPC informed that after discussion with NERLDC, NERTS & MePTCL it has been decided that first phase of UFR inspection and testing would be carried out from 27.07.2018 to 31.07.2018 for Mawphlang, Khliehriat and Nongstoin.

***The Sub-Committee noted as above.***

***Action: NERPC/NERTS/NERLDC/AEGCL/MePTCL/TSECL.***

#### **D.10. Audit of PSS:**

In the Special Meeting held at NERPC on 28.05.2018 the following were decided:-

- Members noted that PSS inspection would be futile and recommended that SRT may be submitted by all plants who have not done since last 3 years, at the moment.
- As per prevalent regulations only units above 50 MW are supposed to activate PSS mandatorily.

In 145<sup>th</sup> OCCM approved the suggestions given by Sub-Group. Sr. Manager, NEEPCO informed that SRT reports for Pare, Ranganadi and Monarchak have already been submitted and the suitability of the same may be confirmed. NERPC/NERLDC agreed to revert back. The forum requested BgTPP and Palatana GBPP to also provide their SRTs at the earliest. NTPC representative informed that since BgTPP was commissioned in 2016 the SRTs available at the time of commissioning may be accepted, which will be submitted shortly.

#### **Deliberation in the meeting**

DM, NTPC informed that the SRT for BgTPP has been submitted to NERPC. The forum requested Palatana to submit the SRT as early as possible.

***The Sub-Committee noted as above.***

***Action: OTPC.***

#### **D.11 Geospatial Energy Portal for NITI Aayog:**

NITI Aayog is developing a user friendly GIS based Energy Map of India, which would provide true locations of all energy resources in India including power plants, coal and oil reserves, transmission lines, refineries, etc.

Ministry of Power (MoP), GoI has designated Central Electricity Authority (CEA) as the nodal agency to collect all the required data/information pertaining to the Power Sector of India by collecting it from different Utilities of Power Sector and submit it to NITI Aayog for early development of the Geospatial Energy Map of India.

Accordingly, CEA vide letters dated 09.02.2018 and 01.05.2018 requested Heads of DISCOMs/Power Departments to furnish the information regarding the name, voltage level, capacity, longitude and latitude of 33 kV and 66 kV Substations and lines as per proforma. However, information is still awaited from most of the utilities

Non furnishing of above information by DISCOM was discussed in a meeting taken by Chairperson, CEA on 26.04.2018, wherein it was advised that all RPCs may be requested to take up the issue in the OCC meetings for furnishing the information in a time bound manner.

Corresponding utilities are requested to provide the missing details in the annexure at the earliest.

In 144<sup>th</sup> OCCM, Director/SE(O&P), NERPC informed that the required data is for national interest and requested all utilities to submit the same. NERLDC requested that the name of substations and transformation capacity given in Annexure D.17 may also be verified and sent to NERPC and NERLDC.

In 145<sup>th</sup> OCCM Director/SE(O&P),NERPC informed that the data has already been submitted by P&ED Mizoram and MePDCL. He thanked SLDC Meghalaya and SLDC Mizoram for the prompt action. He requested all remaining utilities to submit the same by 26<sup>th</sup> June'18.

**Deliberation in the meeting**

The forum requested all the remaining utilities to submit the data in the format(already circulated in 144<sup>th</sup> OCC) within 15 days.

***The Sub-Committee noted as above.***

***Action: DoP Ar. Pradesh, APDCL, MSPDCL, DoP Nagaland, TSECL.***

**D.12 Non-availability of SOE records of Biswanath Chariali, Ranganadi, Dimapur & Bongaigaon:**

The SOE records of both BNC and RHEP do not appear for any breaker operations in any of the elements of both the stations. This causes lack of proper visibility for the system operators in real time and causes hindrance in proper & quick decision making.

In 144<sup>th</sup> OCCM, NERLDC requested the forum to restore the CB status and SOE data of HVDC, BNC as well as RHEP at the earliest as both the stations are very important for NER grid management.

NERLDC has also informed that SOE and Alarm records for Dimapur and Bongaigaon (Interregional links and others) do not appear for any breaker operation in any of the elements of the stations.

DGM(AM), NERTS informed the following w.r.t. different stations:

- *Dimapur* : NTAMC Integration work in progress. After completion of the work Dimapur SOE will be available. Completion by : November-2018.
- Bongaigaon : All Data OK as per Site. (Details given in Anex) For resolving the issue better, joint visit (PGCI & RLDC) at respective site is proposed
- HVDC BNC : All Data OK as per Site. (Details given in Anex) For resolving the issue better, joint visit (PGCI & RLDC) at respective site is proposed
- RHEP : RTU configuration is not in POWERGRID Scope. RLDC may contact respective concern utility.

### **Deliberation in the meeting**

Pls refer to discussion in the 10<sup>th</sup> NETeST meeting. This issue is long pending and immediate resolving is required.

***The Sub-Committee noted as above.***

***Action: NERTS/NERLDC/NEEPCO.***

### **D.13 Poor Governor Response during sudden drop of frequency**

On 23.04.2018 at 10:42 Hrs, there was a sudden decrease of frequency from 50.02 HZ to 49.72Hz in which Palatana has shown an increase of 49MW instantly. Whereas the other NER generators has shown almost a NIL response. Reasons may be intimated.

In 144<sup>th</sup> OCCM, NERLDC informed the forum that on 23.04.2018 at 10:42 Hrs, there was a sudden decrease of frequency from 50.02 HZ to 49.72Hz. During calculation of Frequency Response, it has been observed that most of the generators in NER has shown NIL response except for Palatana.

Sr. Manager, NEEPCO informed that TGBPP responded very well with GTG contributing 7MW and STG almost 2MW. He also informed that Kopili reservoir was very low but still increased generation by 0.75MW inspite of LFO issues. Further the vanes were at full capacity. For AGBPP, he informed that the unit(s) were in

temperature control mode which did not allow to respond due to dip in frequency. The forum requested NHPC and NTPC to revert back with the reasons for poor response.

In 145<sup>th</sup> OCCM NERLDC gave a detailed presentation. It was stated by NERLDC is regularly carrying out calculation of FRC to ascertain governor response. It was explained that non-response by Governor would be treated as a violation of IEGC provision.

Sr. Manager, NEEPCO informed that Khandong & Kopili-Stg-II were running at full capacity, while AGTCCPP did not have any reserve capacity for generation. Manager, NHPC informed that Loktak HEP was generating at full capacity. NTPC agreed to revert back on the governor non-operation **during the event at 1651 Hrs on 06.05.2018.**

***Deliberation in the meeting***

DM, NTPC informed that OEM would look into the issue and report would be presented in the next OCC meeting. NEEPCO is also requested to look into the matter as the Generators response were also negligible.

***The Sub-Committee noted as above.***

***Action: NTPC.***

**D.14 Disruption in Agartala PMU Data**

PMU Data of Agartala got disrupted on (i) 04:53 hrs of 30/04/2018 to 20:00 Hrs of 01/05/2018; and (ii) 16:41 Hrs of 02/05/2018 to 10:32 Hrs of 03/05/2018. On enquiry it was found out that the 132 KV Dhalabil-Agartala S/C Line was under shut down on these period.

This indicates that the CVT input for agartala PMU has been taken from line CVT of Dhalabil-Agartala S/C Line. To avoid any such disruption in future, it is required to shift the CVT input of PMU to Bus CVT of Agartala.

In 144<sup>th</sup> OCCM, NERLDC informed the forum that PMU Data of Agartala got disrupted on 04:53 hrs of 30/04/2018 to 20:00 Hrs of 01/05/2018; and 16:41 Hrs of 02/05/2018 to 10:32 Hrs of 03/05/2018. On both the occasion, it was found out that the 132 KV Dhalabil-Agartala S/C Line was under shut down on these period.

After detailed deliberation it was surmised that line CVT of 132kV Dhalabil-Agartala is being used for PMU. NERLDC requested TSECL to shift the connection to 132kV Bus. TSECL agreed to do the needful by May'18.

**Deliberation in the meeting**

Sr. Manager, TSECL informed that the work has been completed.

***The Sub-Committee noted as above.***

**D.15 Construction Power for GIS bay at Kopili Switchyard:**

PGCIL is taking power from NEEPCO for construction of GIS bay at Kopili SY. During its operation, auxiliary AC supply will also be drawn from Kopili Power Station which will increase normative auxiliary consumption of 1% of Kopili Power Station. Hence this issue also to be discussed in the OCC meeting.

Providing auxiliary ac supply to the newly constructed PGCIL owned GIS substation at kopili SY, from the allowable 1% of the generation on chargeable basis or any other recovery mechanism that the forum may decide.

In 145<sup>th</sup> OCCM, the forum requested NEEPCO to explore the following:

- The approximate power consumption for GIS O&M activities.
- Whether the consumption is within the allowable 1% APC.

NEEPCO agreed to revert back.

**Deliberation in the meeting**

After detailed deliberation the forum decided to drop the agenda item and requested NERTS/NEEPCO to resolve the issue bilaterally.

***The Sub-Committee noted as above.***

***Action: NEEPCO/NERTS.***

**D.16 Crossing of 400 kV D/C Silchar-Melriat and 132 kV D/C Bawktlang - Sihmui Line**

POWERGRID is constructing 400 kV D/C Silchar —Melriat Line as part of Pallatana Transmission Sytem. During check survey, it has been observed that this line has to cross the 132 kV D/C Bawktlang-Sihmui line already constructed by P&E Department, Govt. of Mizoram. As per the proposed route alignment, the Loc No. 244 of the 400 kV line has to be erected at 10m distance from the Loc No. 86 of the 132 kV Line, which is not possible. Also there is no suitable place to relocate the Loc 244.

A number of possibilities have been explored jointly with P&E Deptt., Mizoram to divert either of the two lines and the only feasible option has been intimated to Mizoram vide our letter No. NEAZL/CONST/P&E/2018 dtd. 21.05.18, in which 4 Nos.

towers of the 132 kV Line are to be diverted by erecting 5 Nos. new towers. POWERGRID proposes to bear the cost of this diversion. A sketch of the propose arrangement is attached here with for kind reference.

It may please be noted that the matter is being pursued with P&E Deptt. Mizoram since January'2017 and a number of joint verification have been carried out but a consensus is yet to be reached.

In 145<sup>th</sup> OCCM, DGM(AM), NERTS informed that 400kV Silchar - Melriat commissioning works are going on at an accelerated pace, and the diversion is an utmost necessity. Sr. Executive Engineer, P&ED Mizoram informed that in principle concurrence of P&ED Mizoram is there to the shifting of 132kV Bawktlang-Sihmui D/C. He also stated that estimate is being prepared by Executive Engineer(Trans), Kolasib and the same once approved would be given to NERTS. DGM (AM), NERTS requested Mizoram to allow POWERGRID to carry out the job immediately in parallel to approval of estimate to avoid delay in completion of the project.

#### **Deliberation in the meeting**

During deliberation, DGM (AM), NERTS stated that on 29/06/2018, Engineer-in-Chief, P&E Mizoram communicated POWERGRID for taking up the Diversion of the 132 kV Kolasib – Sihmui (Mizoram) line at POWERGRID's expense and complete the same before Dec-2018. Thereafter on 04/07/2018, POWERGRID intimated P&E Deptt that the dismantling work of TOWER LOC 86 of the 132 kV Kolasib – Sihmui will be started by POWERGRID for the construction of TOWER NO 244 of 400 kV Silchar – Melriat (Mizoram) Line. However, on 10/07/2018, SE (Project Circle-I), Aizawl communicated POWERGRID not to start dismantling works of 132 kV Bawktlang – Sihmui till diversion of the line is completed by POWERGRID.

He further stated that since POWERGRID had already agreed to take up the diversion work of 132 kV Kolasib – Sihmui (Mizoram) Line and also, the commissioning of the said line will take some time, POWERGRID should be allowed to at least dismantle Tower loc no 86 of the 132 kV Kolasib – Sihmui (Mizoram) line immediately so that the construction of 400 kV Silchar – Melriat (PG) Line can be continued for commissioning the same by August 2018. Otherwise, the project is likely to get delayed resulting unnecessary financial impact on all the concerned beneficiaries of NER including Mizoram.

After detail deliberation the forum requested NERPC to take up the issue strongly with Mizoram for allowing POWERGRID to continue the construction activity of 400 kV

Silchar – Melriat (PG) Line by immediately dismantling of tower loc 86 of the 132 kV Kolasib – Sihhmui (Mizoram) Line.

***The Sub-Committee noted as above.***

***Action: P&ED Mizoram.***

**D.17. Registration of all existing and upcoming electricity generating units of the country of capacity 0.5 MW and above under National Level Data Registry System**

Under the National Level Data Registry System, all the existing and upcoming electricity generating units of the country of capacity 0.5 MW and above would have to get registered with CEA and get a unique registration number from CEA. For this purpose, a detailed framework was prepared by CEA and the same has been approved by Ministry of Power, Government of India.

For implementing the aforementioned National Level Data Registry System, CEA is preparing an E-Registration Portal and operationalization of E-Registration Portal may take 2 to 3 months time. Once the E-Registration Portal of CEA is ready, all the stakeholders would be informed accordingly by CEA for registering and feeding the data. It is therefore, requested to nominate a nodal officer and intimate the name, mobile, email, address of the same to the undersigned at the e-mail address [pslfcea@yahoo.com](mailto:pslfcea@yahoo.com). It is further intimated to keep the concerned officer in readiness for doing the needful.

Till the E-Registration Portal of CEA is operationalized, all the existing procedure of furnishing data will continue as per existing provisions and laws.

Accordingly all generating utilities may please submit the relevant details of the nodal officer.

In 145<sup>th</sup> OCCM Director/SE(O&P), NERPC apprised the members of the novel initiative of MoP to create a National Data Registry for generating stations. He requested members to peruse the annexure and comply accordingly.

**Deliberation in the meeting**

Director/ SE(O&P), NERPC clarified that this initiative is mainly to register upcoming generating units in a national portal. He requested all state generating utilities to nominate their nodal officer(s) at the earliest.

***The Sub-Committee noted as above.***

**Action:** APGCL/MePGCL/DoP Ar.Pradesh/ P&ED Mizoram/DoP Nagaland/MSPCL/TPGCL.

#### **D.18. Regional Committee for Load Forecasting**

In 20<sup>th</sup> FOLD meeting held on 25<sup>th</sup> January 2018, members agreed about the Industry-Academia partnership for the load forecasting. The most important benefit of SLDC academia association shall promote capacity building at SLDC level on load forecasting leading to development of in-house capability.

Further, it was also decided that a competition among LDCs on daily load forecast would be organized. A committee may be constituted comprising members from SLDCs, RLDCs and NLDC, to evaluate the forecast by each LDC, based on a pre-defined performance matrix.

In view of the discussion in 20<sup>th</sup> FOLD meeting, a committee for NER region to evaluate the performance of the LDCs on load forecasting will be formed and the committee will comprise the following members:

- a. One member from NERLDC
- b. One member from at least 2 SLDCs of the NER region

The committee will evaluate the accuracy of the day ahead forecast (based on the Root Mean Square Error) of the participating LDC on monthly basis till 31<sup>st</sup> Mar'19.

Subsequent to evaluation at Regional Level, a committee at National Level comprising members from NLDC, RLDCs and SLDCs will be formed for evaluation of the winner(s).

Based on the details received from LDCs, and the accuracy of the forecasting model, the committee after the completion of the FY 2018-19, will decide the award(s) to be given to the concerned LDCs.

In 145<sup>th</sup> OCC meeting NERLDC informed the forum as decided during 20th FOLD Meeting, it was requested to approach academic institutions for developing Load Forecast Model. A competition will be held and a committee will be formed to analyze the results. After detailed deliberation the forum decided to form a committee to spearhead the load forecasting initiative:-

- Smt. Momai Dey, Sr. Engineer, NERLDC
- Shri T. Gidon, Executive Engineer, SLDC Meghalaya
- Smt. Barsha Kashyap, DM SLDC Assam

The committee was requested to submit a monthly report on the activities undertaken to improve load forecasting.

***Deliberation in the meeting***

NERLDC informed the forum that formulation of algorithm is under development in association with NIT Meghalaya. NERLDC requested all SLDCs to take help from academia for development of load forecasting models. After detailed deliberation members decided that the item would be dropped in the meantime and reviewed in later stage.

***The Sub-Committee noted as above.***

***Action: All SLDCs/NERLDC.***

**D.19. Blackout of 220 kV Misa(PG) and Kopili HEP on 21st May'18**

220 kV Misa Bus and Kopili Power Station were connected with rest of NER Grid through 220 kV Misa-Dimapur 1 & 2 Lines, 220 kV Misa-Byrnihat (Killing) 1 & 2 Lines, 220 kV Misa-Samaguri 1 & 2 Lines, 220 kV Misa-Mariani (PG) Line, 400/220 kV, 315 MVA ICT 1 & 2 at Misa Substation, 220 kV Misa-Kopili 1, 2 & 3 Lines, 132 kV Kopili-Khandong 1 Line and 132 kV Bus-Coupler of Khandong Substation. 132 kV Khandong - Kopili 2 line and Khandong U 1 & 2 were connected with Bus B and 132 kV Kopili - Khandong 1 Line, 132 kV Khandong - Khliehriat 1 & 2 Lines and 132 kV Khandong - Umrangshu Line were connected with Bus A.

At 15:31 Hrs on 21.05.2018, 220 kV Misa-Dimapur 1 & 2 Lines, 220 kV Misa - Byrnihat (Killing) 1 & 2 Lines, 220 kV Misa - Samaguri 1 & 2 Lines, 220 kV Misa-Mariani (PG) Line, 400/220 kV, 315 MVA ICT 1 & 2 at Misa substation, 220 kV Misa-Kopili 1, 2 & 3 Lines, 132 kV Kopili - Khandong 1 Line and 132 kV Bus-Coupler of Khandong Substation tripped.

Due to tripping of these elements, 220 kV Misa Bus and Kopili Power Station were separated from rest of NER Grid and subsequently Kopili Power Station and 220 kV Misa were blacked out.

At first 220 kV Misa Bus-A charged through ICT-I at Misa at 16:08 Hrs and following lines connected to Bus-A restored progressively.

- 132 kV Khandong - Khliehriat I at 15:59 Hrs.
- 220 kV Misa- Kopili I at 16:12 Hrs.
- 220 kV Misa- Samaguri I at 16:16 Hrs.
- 220 kV Misa- Dimapur II at 16:21 Hrs.

- 220 kV Misa- Byrnihat II at 16:29 Hrs.

While charging the lines connected to Bus-B by shifting to Bus-A; at 16:34 Hrs, the total restored lines got tripped once again resulting voltage failure of 220 kV Misa Bus.

After detailed inspection, restoration of lines started at 17:18 Hrs through 400/220 kV ICT-I at Misa.

**Following issues may be discussed:**

- a. Reason of Fault ~ R-E fault evolved in to R-Y-B-E fault
- b. Reason for delayed fault clearance (~3480 msec)
- c. Reason for Tripping of all elements in both 220 kV Bus-A & Bus – B at Misa(PG)  
- POWERGRID is requested to intimate the how 220 kV elements were distributed (elements connected to 220 kV Bus-A & 220 kV Bus-B prior to disturbance)
- d. Reason for tripping of 220 kV Samaguri – Sarusajai-2 line
- e. Reason for tripping of 132 kV Khandong – Khiehriat -1 line
- f. Reason for tripping of restored elements emanating from 220 kV Misa at 16:34 Hrs
- g. Reason for LFO observed

NERLDC gave presentation on the incident (**attached in Annexure D.19**). DGM (AM), NERTS stated that the detail analysis and findings to be done by sub group immediately after the occurrence any GD – III & above level grid disturbance and place the recommendation to OCC for implementation by concerned agencies. In this case sub group analysis and findings yet to be placed. Members requested NERPC to hold a Protection Sub-group meeting at the earliest for RCA.

**Deliberation in the meeting**

The forum took due note of the findings and recommendations of the Sub-group w.r.t. Misa Disturbance. DGM (AM), NERTS opined that all CT, PT are not to be replaced due to failure of one PT. He recommended that by mere age the equipments replacement should not be done unless there is some indicative problem found during diagnostic testing. NERLDC informed the forum that in existing 220kV Bus Bar Protection there are some feeders where 3 core CTs are used. DGM (AM), NERTS informed that the existing 220kV Bus Bar Protection at Misa is already obsolete and under ongoing NERSS VII scheme the 220kV Bus Bar Protection and all 3 Core CTs will be replaced.

Sr. Manager, NEEPCO informed that at Khandong SY, Transfer Isolator is present but not used due to bus bar conductor limitation (ACSR Zebra). Further Main Bus

Conductor is to be upgraded to HTLS Zebra (already approved in SCM). DGM(AM) suggested that the upgradation of 132kV Khandong - Kopili Ckt#II to HTLS be included in the MoM of 7<sup>th</sup> SCM.

***The Sub-Committee noted as above.***

***Action: NERPC/NERTS/NEEPCO.***

**D.20. Overloading Problem of 132 kV Pare-Ranganadi I and 132 kV Pare – Lekhi Lines**

After commissioning of two units of PARE HEP (NEEPCO), the generation with full capacity is 110 MW and the power evacuation is through 132 kV Pare-Ranganadi and Pare-Lekhi lines. Whenever 132 kV Nirjuli-Gohpur line remains closed and the Gohpur load (14-18MW) is fed radially from Nirjuli, it creates overloading of 132 kV Pare-Lekhi line (90-95 MW) during peak hours and during off peak hours, overloading takes place at 132 kV Pare-Ranganadi line (90-94 MW). Hence to avoid any tripping due to overloading, load management/generation reduction has become the daily issues in real time condition.

In 145<sup>th</sup> OCCM, NERLDC representative explained the overloading in 132 KV Pare-Ranganadi line mainly during evening peak load hours. It was felt that commissioning of Ranganadi-Pare-Chimpu lines would provide solution to the issue. Ar. Pradesh representative stated that the line(s) were ready for charging, only signing of connection agreement between NEEPCO and Ar. Pradesh was to be done. He stated that matter was pending with State Govt. and was expected any time. He agreed to pursue with State Govt.

Till that time, it was agreed to control overloading with load management at Gohpur. It was also agreed not to supply Gohpur from Nirjuli during peak load hours.

**Deliberation in the meeting**

ED, NERLDC stated that at present to mitigate the overloading problem and to avert the tripping of 132kV Gohpur- Nirjuli and 132kV Nirjuli-Lekhi on O/C, split bus at Gohpur is essential. CGM, APDCL opined that for integrated operation split bus is not recommended and would reduce reliability of power supply. After detailed deliberation the forum decided the following:-

- A case study would be done by NERLDC for (i) closed loop operation at Gohpur, (ii) Split bus at Gohpur. This is to be circulated forthwith.
- In the meantime Gohpur load to be made radial from Nirjuli.
- 132kV RHEP-Chimpu to be charged ASAP by DoP Ar. Pradesh.

- NERLDC informed the forum that commissioning of the 132 kV Biswanath Chariali – Itanagar line & 132 kV Biswanath Chariali – Gohpur - Itanagar lines, which have been approved by joint Standing Committee of ER and NER on 03.01.2014 and 6th Standing Committee of NER on 03.10.16 respectively and is under execution by Sterlite Grid 4; would enhance the reliability of power supply to Gohpur.

***The Sub-Committee noted as above.***

***Action: AEGCL/ DoP Ar.Pradesh/NERLDC.***

#### **D.21. High MVAR Drawl by Bangladesh**

It has been observed mostly during peak hours that, Bangladesh drawal reaches 190 MW with reactive power consumption of 60-70 MVAR and sometimes even more. Any generation outage at Tripura during these periods (say outage of Monarchak/ Rokhia) causes severe low voltage issue at Agartala and hence AGTCCPP Units /132 kV system are compelled to supply very high quantum of MVAR to maintain Agartala Bus voltage which is not desirable for safety of the grid system. To prevent such issues, action needs to be taken to restrict MW/MVAR drawal by Bangladesh.

In 145<sup>th</sup> OCCM Director/SE(O&P, NERPC informed the forum that the issue would be discussed with CEA/NLDC how to resolve the issues pertaining to power supply from Tripura. The detail would be communicated subsequently.

#### **Deliberation in the meeting**

DGM, SLDC, AEGCL informed the forum that the high MVAR drawal by Bangladesh is affecting the South Assam voltage with frequent dips. Member Secretary, NERPC took note of the concerns of the members and assured that the matter would be taken up with CEA/NLDC/MoP.

***The Sub-Committee noted as above.***

***Action: NERPC.***

#### **D.22. LILO of 132 kV Jiribam-Aizawl at Tipaimukh S/S charged without following normal procedures.**

S/D for LILO work of 132 kV Jiribam-Aizawl line (PG) at Tipaimukh S/S (Manipur) was taken on 1st June 2018 by Manipur. The same LILO Tipaimukh S/S (Manipur) was charged for the first time from Jiribam end on 3rd June 2018 at 1017 hrs and finally closed successfully at 11:34 hrs. However, this was allowed as a special case so

that reliability of power supply to Mizoram is not affected. Till date, Telemetry data (RTU) & Voice communication systems are yet to be made available as mandated by IEGC. Manipur is requested to complete all formalities at the earliest possible.

In 145<sup>th</sup> OCCM, NERLDC representative stated that Telemetry data (RTU) & Voice communication systems are yet to be made available as mandated by IEGC at Tipaimukh Substation by MSPCL. MSPCL representative agreed to the same.

NERLDC also requested all concerned to follow the prescribed procedure as stipulated by CERC in case of first time charging of any new element.

**Deliberation in the meeting**

MSPCL representative informed the forum that PLCC panels are already available for Tipaimukh. However RTU is covered under the 'Reliable Communications Scheme' which has been approved and under implementation. The forum requested MSPCL to give priority to Tipaimukh S/S so that telemetry may be put through as early as possible.

***The Sub-Committee noted as above.***

***Action: MSPCL***

**D.23 Providing Power Supply to OTPC Plant Colony from Palatana Plant- Installation of SEM thereof**

The housing colony of Palatana Plant is under construction and is likely to be completed within a year or so. The colony is situated around 7 (Seven) kilometer away from Palatana plant. For a reliable power supply to the colony, it is proposed that power supply to the colony be arranged from Palatana Plant itself. The total power consumption of the Colony is expected to be around 2 (Two) MW. It is proposed to draw power from 6.6 kV station bus of Palatana Plant to the Colony. The Colony power consumption shall be treated as drawal of TSECL and TSECL shall raise bill to OTPC as per their applicable Tariff structure. OTPC and TSECL shall finalize the modalities of construction of line, billing etc. through mutual discussion and agreement.

This agenda is placed before the Operation Co-ordination Committee for discussion and approval for installation of SEMs so that colony power drawal shall reflect in REA as consumption of TSECL.

In 145<sup>th</sup> OCCM GM, OTPC informed the forum that due to paucity of land in the power plant complex the colony had to be constructed about 7km away. For reliable power supply to the colony; OTPC is planning to lay 6.6kV cable from power plant, which will

be fed via Station Transformer. He also stated that OTPC plans to become consumer of Tripura and upon installation of SEM, bills may be raised by the latter.

APDCL representative raised the following issues:-

- Installation of distribution line and operation by generating company.
- Billing issue.
- whether TSECL is able to supply power to the colony

Members further opined that CEA and CERC clarification is required so that no existing regulations are violated.

DGM(MO), NERLDC stated the following:-

- TSECL is to confirm.
- Protection issues to be sorted out because a generator would be connected to distribution consumer.
- As per current regulations metering is upto 132kV level (However, in NER, as an exception, it is done for 33 KV also in case of old legacy lines of Assam-AP, Assam-Nagaland, Assam-Bhutan) So regulatory modifications/guidelines are required before installation of SEM.

The forum agreed in-principle drawal of power by OTPC township directly from the power plant, subject to views and decision of CEA and CERC in this regard. It was decided that the NERPC would take up the matter with CERC and would be resolved within 30.06.2018.

### **Deliberation in the meeting**

Director/SE(O&P), NERPC informed the forum that as per decision taken up TSECL and as communicated to him telephonically by Dir(Tech), TSECL, OTPC colony has to draw power from Tripura State grid. He also intimated that CERC has given its in-principle approval to drawing of OTPC Colony power from Palatana, as similar situation exists at Anpara Power Plant. The forum decided to drop the agenda item.

***The Sub-Committee noted as above.***

### **D.24 Surplus in NER and backing down of hydro ISGS:**

In 145<sup>th</sup> OCCM it was stated that due to sudden rains resulting in spillage in Ranganadi HEP coupled with load crash in States, all NER States were drawing much less than their schedule during early hours of 13.06.2018. This resulted in export to ER to the tune of 800 MW against schedule of around 100 MW. NERLDC took action by coordinating with States and all thermal units were reduced to Technical minimum level. In-spite of that still there was deviation in inter-Regional schedule and one unit

of BgTPP was sent under Reserve Shutdown wef 1230 Hrs on 13.06.2018. Also the reservoir based hydro Stations which were not spilling were asked to reduce generation.

NERLDC requested all the States and Generators to cooperate in such situation to maintain Grid Security. The States were advised to explore the option of intra-day market in such a situation of sustained underdrawal, this would be beneficial to the States in view of shortage in other Regions during Summer season.

NTPC-BgTPP stated that it would be preferable for them to go under RSD rather than running in part load close to 55%. NERLDC clarified that once U-3 of BgTPP is commissioned, backing down would be frequent during monsoon and NTPC units would be needed during peak load hours only. Accordingly, NTPC may opt to operate the units accordingly by preferring the option of RSD.

NEEPCO representative stated that hydro units should not be asked to back down in monsoon when there is spilling like situation. NERLDC clarified that respective generating station would have to declare spilling backed up by water level data and in such a case generator would not be asked by NERLDC to back down.

In case of Loktak, it was agreed that Power Channel water level would be considered by NERLDC.

It was apprehended that with the commissioning of Pare HEP and probable commissioning of BgTPP U-3 and Kameng HEP, there would be substantial surplus during monsoon mainly in off-peak and proper planning would be required by beneficiary States and generators to tackle such situation.

### **Deliberation in the meeting**

Sr. Manager, OTPC stated that with consent of beneficiaries, OTPC can sell the excess in the DAM and Contingency market at good rates. Sr. Manager, TSECL informed that in TAM Intraday market there is no demand of power. Members unanimously voiced their concern over the irregular generation pattern of Ranganadi. It has been observed that RHEP generation has been inconsistent, with frequent revision in R1 at 23:00 due to sudden increase of generation i.e. 0 to 405 MW which resulted in very high unscheduled interchange with Eastern region. NERLDC requested RHEP, NEEPCO to have proper forecasting technique and declare DC realistically for scheduling/entitlement and R0. DGM(MO), NERLDC stated that though NEEPCO has every right to make revisions with notice, full capacity withdrawal or generation should be avoided to reduce the burden on beneficiaries. Sr. Manager, NEEPCO

informed that forecasting has been improved for RHEP with installation of 4 nos. RWG (contract given to NASAQ). NERLDC has also pointed out that whenever generation reduction instruction is given to AGBPP upto their tech. min of 55%, AGBPP responded reluctantly. ED, NERLDC stated that CERC has decided 55% as technical minimum and hence unless CERC gives any new direction in this regard, the same should be followed. He also informed that if generation reduction instruction(for AGBPP&AGTCCPP) is given suddenly by NERLDC (up to technical minimum), then gas supply would be throttled by suppliers. However NERLDC stated that CERC guideline is always followed whenever any generation reduction instruction given to AGBPP by maintaining effective from the 4<sup>th</sup> time block. NERLDC further raised that the present Khandong water level is greater than full reservoir level declared by Khandong which is impossible. NEEPCO informed that for Khandong HEP W.L is greater than FRL because of installation of vertical gates. The revised FRL would be communicated upon concurrence of CEA.

***The Sub-Committee noted as above.***

***Action: All DISCOMs, NHPC, NERLDC.***

#### **D.25 Increase of Reliability of Power Flow to Bangladesh**

At present, power is fed to Bangladesh through 132 kV Suryamaninagar – Comilla D/C (400 kV charged at 132 kV). At Suryamaninagar end, adopted CT ratio is 1000:1, Over-current Plug Setting Multiplier (PSM) is 0.8. This calculates to a power flow of about 183 MVA ( $1.7321 \times \text{Voltage} \times \text{CT Ratio} \times \text{PSM}$ ) in single circuit.

With the above settings and in high power flow scenario to Bangladesh (~192 MW as contracted), in case of tripping of one circuit of 132 kV Suryamaninagar – Comilla D/C, the reliability is greatly reduced as the other circuit will not able to cater the power flow. Changing the PSM value at Suryamaninagar to "1" will allow power flow of about 229 MVA via single circuit of 132 kV Suryamaninagar – Comilla D/C.

For safe and reliable power transfer to Bangladesh, it is propose the set the PSM at Suryamaninagar to a higher value so that full contracted power flow to Bangladesh can be transferred even if one circuit trips.

Members may discuss the PSM value to be set at Suryamaninagar and restrictions, if any, at Comilla end.

In 145<sup>th</sup> OCCM Director/SE(O&P), NERPC took strong note of the unilateral action of TSECL to increase power flow to 160MW without intimating the forum. Since bays at Surjamaninagar are being maintained by NERTS, any increase in power flow ordains

changes to be made in protection settings. DGM(AM), NERTS opined that changing PSM would be futile since it is meant for O/C protection of particular line. He suggested that Overload Relay with higher time setting may be installed. Members approved the suggestion and requested NERPC to take up the matter with NPC/NLDC/MoP regarding uncontrolled load pattern of Bangladesh.

At present due to any outage in the Palatana-SMNagar corridor, whether ICT/line the power flow to Bangladesh is affected. Tripura may please inform its views and clarify on the contracted load to Bangladesh.

**Deliberation in the meeting**

After detailed deliberation the forum requested NERPC to take up the matter with CEA/NLDC/MoP.

***The Sub-Committee noted as above.***

***Action: NERPC.***

**D.26 Flexibility in generation and scheduling of thermal power station to reduce emissions:**

In 145<sup>th</sup> OCCM Director/SE(O&P), NERPC informed that MoP vide letter dated 05.04.2018 has informed of the policy regarding 'Flexibility in generation and scheduling of thermal power station to reduce emissions'. He also explained the backdrop of the unique proposed procedure:-

- The concept of Flexible utilization of coal by the generating companies was introduced in 2016. This has resulted in usage of coal within own basket to the nearby generating stations.
- Thus has reduced unnecessary transportation costs and reduction in power generation cost.
- Now after large scale integration of renewable the burden of renewable obligation has fallen on DISCOMs. This would be counteractive in balancing the grid.
- So in order for generators to share the responsibility this framework is being introduced. After feedback from all the concerned utilities this would be made operational.

The detailed framework was circulated.

NERPC requested the members especially generating utilities to provide their comments ASAP.

**Deliberation in the meeting**

Director/SE(O&P), NERPC requested all the generating utilities and especially NERLDC to submit their comments ASAP so that the same may be communicated to MoP.

**The Sub-Committee noted as above.**

**Action: All generating utilities, NERLDC.**

**D.27 Generation backing down details:**

FRL: 768.50 m

MRL: 769.23m

DATE	DC Loktak (MU)	DC given by NERLDC (MU)	Diff (MU)	Power Channel Level (EL in m)	Ithai Barrage Level (EL in m)	Spillage in cumecs at Ithai Barrage
12.06.18	2.457	2.427	0.03	766.79	769.2	159.82
13.06.18	2.457	1.90075	0.55625	766.94	769.3	271.93
16.06.18	2.457	2.45575	0.00125	767.32	769.14	210.64
18.06.18	2.457	2.2755	0.1815	767.49	768.81	297.89
23.06.18	2.457	2.3908	0.0662	767.85	768.54	146.5
29.06.18	2.457	2.309	0.148	768.02	768.72	156.54
01.07.18	2.457	2.3573	0.0997	768.02	768.5	141.92
02.07.18	2.457	2.3625	0.0945	768.02	768.53	115.44
03.07.18	2.457	2.2478	0.2092	768.02	768.97	102.1
04.07.18	2.457	1.83431	0.62269	768.02	768.91	102.22
05.07.18	2.457	2.05725	0.39975	768	768.95	79.58
09.07.18	2.457	2.43725	0.01975	768.01	768.80	156.99

Total = 2.42879 MU

Frequent backing down of Generation of Loktak Power Station is observed from Previous month i.e., 12<sup>th</sup> June 2018. At the same time spillage of Water from ithai barrage and the same had been communicated to NERLDC through mails and telephone also. In this context for better understanding of Loktak Power Station as per discussions held in 145<sup>th</sup> OCC meeting NERLDC officers along with officers of SLDC, Manipur visited Loktak Power Station, NHPC on dated 22 June 2018. The same was explained to the officers on visit why we should not back down the

generation of Loktak Power station during Monsoon season except in Emergency situation (for fast response).

Loktak Power Station want to give detailed presentation on Loktak Lake & Ithai Barrage for better understanding and further not to backdown the generation of Loktak to utilize the renewable resources in better way.

**Deliberation in the meeting**

NHPC represented the following i.r.o Loktak generation:-

- Loktak lake is connected to Imphal river via two water channels viz. Ungamel and Khordak. These channels are connected to Imphal river and are two-way in nature.
- To release excess water in Imphal river, Ithai barrage is also present.
- During rising of water level in Imphal river, only discharge of Imphal river(14cumec to 22cumec) can enter Loktak lake through the two channels and excess water is released through Ithai barrage gates.
- Contrary to previous year the rainfall has been higher in Imphal river catchment till June'18.
- In the event of higher rainfall in Loktak catchment from July'18 onwards, there would be spillage if the water level is not kept sufficiently lower.
- So no generation reduction instruction should be given to NHPC Loktak.

ED, NERLDC requested NHPC to provide a sacrosanct reservoir level clearly indicating a single FRL along with corresponding energy level which would be taken as reference for scheduling purpose. The same may be communicated to CEA also. Till that time, FRL of power channel would be considered for scheduling purpose.

***The Sub-Committee noted as above.***

***Action: NHPC, NERLDC.***

**D.28. Furnishing Technical and Commercial data for computation of PoC Charges and Losses for Q3 of 2018-19 (Oct 2018 – Dec 2018):**

All the power utilities are requested to furnish Technical and Commercial data for computation of PoC Charges and Losses for Q3 of 2018-19 (Oct 2018 – Dec 2018) by 16<sup>th</sup> Jul'18.

Utilities are requested to submit the technical and commercial data.

**Deliberation in the meeting**

NERLDC informed that NHPC, AEGCL and MeECL has already submitted the relevant data. The forum requested the remaining utilities to submit the data at the earliest.

***The Sub-Committee noted as above.***

***Action: All remaining utilities.***

**D.29. Updated Operating Procedures of NER July 2018 (Final)**

In 145<sup>th</sup> OCCM, NERLDC informed the forum that Draft Updated Operating Procedures of NER July 2018 is available in NERLDC website for comments and suggestions from regional entities of NER. Password was shared among the members.

No comment has been received from power utilities of NER.

The final version of compiled document on Operating Procedures of NER July 2018 is made available in pdf format in NERLDC website (www.nerldc.org) with password protection. Password may be obtained from SO-II Department, NERLDC.

**Deliberation in the meeting**

NERLDC informed the forum that final document will be uploaded in the website by 20.07.2018.

***The Sub-Committee noted as above.***

***Action: All utilities.***

**D.30. Updated Power Map of NER July 2018 (Final)**

In 145<sup>th</sup> OCCM, NERLDC informed the forum that Draft Updated Power Map of NER July 2018 is available in NERLDC website for comments and suggestions from regional entities of NER. Password was shared among the members.

No comment has been received from power utilities of NER.

The final version of compiled document on Power Map of NER July 2018 is made available in pdf format in NERLDC website (www.nerldc.org) with password protection. Password may be obtained from SO-II Department, NERLDC.

Power utilities of NER are requested to furnish geographical co-ordinates of the nodes as per format.

**Deliberation in the meeting**

NERLDC informed that the updated version has been uploaded in NERLDC website on 15.07.2018.

***The Sub-Committee noted as above.***

**D.31. Review of Automatic Under Frequency Load Shedding (AUFLS) relay settings in Indian Power System**

In the 7<sup>th</sup> meeting of NPC on 8<sup>th</sup> September 2017, it was agreed that the present AUFLS scheme in Indian Power System need to be reviewed. Under frequency load shedding relays are meant to act in cases of grid frequency dip below a set level due to significant mismatch of load generation in the system.

The present UFLS scheme in Indian Power System is set to operate in 4 stages of 0.2 Hz steps, viz. at 49.2 Hz, 49.0 Hz, 48.8 Hz and 48.6 Hz. Recent events in the Indian Power System indicate that frequency response characteristics (FRC) has improved from around 5000 MW/Hz in 2015 to 15000 MW/Hz at present.

Frequency response of grid in the recent events indicates that it is very unlikely that frequency dips due to credible contingencies of loss of large generation complexes or loss of tie lines would cause operation of UFR relays at present settings.

For modification of AUFLS scheme for Indian Power System, following aspects can be considered:

- a. *Raise the frequency of operation of each stage of AUFLS by 0.4 Hz, and set the revised AUFLS scheme in 4 stages at 49.6 Hz, 49.4 Hz, 49.2 Hz and 49.0 Hz.*
- b. *Limit the total trip time for modified AUFLS to 200 milliseconds (including measurement time, relay operation time, and breaker operation time)*
- c. *Design AUFLS scheme for at least 25% of load-generation mismatch in Indian Power System.*
- d. *Define the terms of 'Synthetic Inertia' and 'fast frequency response' and include appropriately in the Grid Standards*
- e. *Co-ordinate under frequency trip relays of Pump storage plants in pumping mode with modified AUFLS scheme, and set the trip frequency to around 49.8 Hz.*
- f. *Geographically distribute the AUFLS trip relays to prevent over voltages.*

**Deliberation in the meeting**

NERLDC informed that the points have been suggested by NLDC for the entire Indian grid. Director/SE(O&P) stated that the stages of the operation should be as per revised scheme agreed in the last NPC meeting i.e. 49.4 Hz, 49.2 Hz, 49.0 Hz, 48.8 Hz. It was decided that the state-wise quantum would be prepared and presented in the next OCCM for ratification.

***The Sub-Committee noted as above.***

**Action: NERPC/ NERLDC.**

**D.32. Absorption of Reactive Power by generators:**

For testing of reactive power absorption capabilities a draft procedure (circulated in 143rd OCCM) has been prepared by NERLDC with inputs from Southern Region where similar tests have been conducted. Members were requested to provide their valuable comments. Generators where AVR is not installed may please provide the time schedule for installation.

Director/SE(O&P), NERPC requested all the members to kindly peruse the draft procedure and provide their valuable comments prior to next OCC.

In 144<sup>th</sup> OCCM, Sr. Manager, NEEPCO informed that testing as per suggested procedure is impracticable. Since the capability curve is at rated terminal voltage, it is not suggested to vary the system voltage. After detailed deliberation the forum decided that testing would be done as per common practice of other regions. Members requested NERPC/NERLDC to frame the procedure in line with other regions.

**Deliberation in the meeting**

Director/SE(O&P) informed that the common practice in other regions is to ensure absorption as per capability curve. Only when there are deviations then testing is performed as per suggestion of OEM. ED, NERLDC opined that presently at least absorption as per capability curve must be ensured for all CSGS. The forum requested all generating utilities to submit the capability curve for their respective units.

***The Sub-Committee noted as above.***

**Action: NHPC, NTPC, OTPC, NEEPCO.**

**D.33. One day Workshop on "Power System Protection"**

NERLDC is organizing a one day workshop on "Power System Protection" at NERLDC, Shillong for the benefit of stakeholders of the region on 25th July'18.

The following topics are planned to be covered in this workshop from Power Station perspective:

- a. Electrical Protection and Control System
- b. Mechanical Protection System
- c. Instrumentation

The following topics are planned to be covered from Substation perspective:

- a. Transmission Line Protection

- b. Transformer & Reactor Protection
- c. Protection related to HVDC system

The following topics are planned to be covered from Distribution System perspective:

- a. Protection in Distribution System
- b. Brief Introduction of Automatic Demand Management System (ADMS)

NTPC, NHPC, NEEPCO, OTPC, POWERGRID & APDCL are requested to nominate persons acquainted with the subject for delivering presentation in the above mentioned topics.

***The Sub-Committee noted as above.***

**D.34. Outage of 400/132 kV, 125 MVA ICT-II at Palatana, OTPC since 08.07.18**

400/132 kV, 125 MVA ICT-II at Palatana, OTPC tripped due to OSR operation at 01:32 Hrs on 8th Jul'18 since then it is out of service.

**OTPC was requested to furnish the following details:**

- a. Preliminary Report of tripping of 400/132 kV, 125 MVA ICT 2 at Palatana (tripped due to OSR operation at 01:32 Hrs on 8th Jul'18)
- b. List of activities done for identification of root cause of the event till date.
- c. List of other activities (day wise) are to be carried out for early restoration of this element.

In absence of 400/132 kV, 125 MVA ICT 2 at Palatana, loading of 400/132 kV, 125 MVA ICT-1 at Palatana remains high especially during the peak hours. So for safe and secure operation of Tripura Power System, it is very important to restrict the ICT-1 loading within limit by restricting Tripura drawl from the grid.

**Deliberation in the meeting**

Pls refer to discussion in item **B.1.(2)**

***The Sub-Committee noted as above.***

**Action: OTPC**

**D.35. Procurement of additional 70 Laptops:**

NERTS-POWERGRID explained the following in 145<sup>th</sup>. OCC Meeting:

Procurement of laptop had two parts:

- a. Laptops
- b. M S Office std.2016 paper License.

However, bidder has indicated that MS office std.2016 paper licenses are out of date and cannot be supplied.

As such further process for placement of award could not be moved.

NERTS wanted to know: --

- (i) Whether to go for procurement of Laptops only through the current NIT which is under evaluation and procurement of M S office through a separate tender.
- (ii) Whether to cancel the current NIT under evaluation and go for fresh tendering for both LAPTOP and MS Office.

On enquiry, DGM(AM), NERTS informed that procurement of MS Office through separate tender would take little time.

Accordingly, OCC agreed for option (i) for procurement of Laptops through current tender under evaluation and separate procurement of MS Office through separate tendering.

POWERGRID was advised to complete entire activity within Sept'18.

#### **Deliberation in the meeting**

NERTS intimated that Contract for Procurement of Laptop have been finalized. NOA Placed on 06.07.2018. As per the Contract Delivery Schedule 06(Six) Months i.e. by January-2019. Cost estimate for license for MS Office is under preparation.

DGM(AM), NERTS clarified that procurement of MS Office would also be completed by Jan'19.

***The Sub-Committee noted as above.***

***Action: NERTS.***

#### **D.36. Installation of new L&T SEMs in NER:**

NERTS-POWERGRID intimated the following in 145<sup>th</sup>. OCC meeting:

"Installation of SEM meters at different sites already taken up.

Balipara : Work in Progress. Completion by 19.06.2018

For other location: SEM meters are being dispatched/collected by different location from central store. Installation will be completed by 31.06.2018 as per target.

Note: On 14-06-2018, installation of 2 nos. of SEMs at Chimpu end is completed as desired by POSOCO.

As installation of SEMs will be completed soon. Hence POSOCO may please suggest whether to proceed with the installation as New SEMs will require new DCD or new software with USB/Optical data cord. If utilities fail to provide laptop/desktop for software installation, collection of SEM will not be possible till procurement/issue of new DCDs which are under procurement."

DGM(MO), NERLDC stated that taking into account above factor, early procurement of Laptop and DCDs would be crucial. He requested NERTS to stick to the timeline for both the activities and until then, any further installation of new Meters in new locations has to be in consultation with NERLDC.

**Deliberation in the meeting**

NERTS intimated status of Installation of SEM is as follows: -

Name of Location	Status of Installation	Qty of SEM
Balipara (PG)	Completed	6 Nos. SEM
Doyang(NEEPCO)	Completed	4 Nos. SEM
Lekhi/Para(NEEPCO)	Completed	2 Nos. SEM
R C Nagar(NEEPCO)	Completed	9 Nos. SEM
Bongaigaon(PG)	Installation By 17.07.2018	2 Nos. SEM
Khangdong(NEEPCO)	Installation by July-2018	5 Nos. SEM
Loktak(NHPC)	Installation scheduled on 16.07.2018. PGCIL visited today i.e. 16 <sup>th</sup> . But NHPC confirmed they will install in switchyard. Meter handed over to NHPC on 16.07.18.	4 Nos. SEM
IMPHAL(PG)	Installation by 18.07.2018	3 Nos. SEM
Mizoram(State)	Installation by July-2018	2 Nos. SEM
<b>Total</b>		<b>37 Nos. SEM</b>

**The Sub-Committee noted as above.**

**Action: NERTS.**

**D.37. AMR in NER:**

NERTS provided the web-link for the tender as under:

**[www.pgcileps.buyjunction.in](http://www.pgcileps.buyjunction.in)**

NERTS intimated in 145<sup>th</sup>. OCC meeting that so far no response received from any party even after extension of bid sale date. Extended bid sale date in 20.06.2018 and OBD by 28.06.2018. Based on response from the party further schedule for LOA will be provided.

**Deliberation in the meeting**

DGM(MO)-NERLDC presented the highlights of CERC order No. 07/SM/2018 dated 16.07.2018 in the matter of Pilot Project on 05-Minute Scheduling, Metering,

Accounting and Settlement for Thermal/Hydro, and on Hydro as Fast Response Ancillary Services (FRAS) (copy enclosed at **Annex-D.37**)

It was agreed that in view of this order, AMR project in NER would be kept in abeyance considering leapfrog to 5-minute metering and implementation of AMR by CTU in centralized manner.

***The Sub-Committee noted as above.***

***Action: NERTS.***

**D.38. Testing of SEMs at accredited laboratory:**

In 145<sup>th</sup>. INERTS intimated the tender documents were under preparation and gave the following tentative schedule:

Tentative Bid Sale: July-2018

Tentative OBD: September-2018

Tentative LOA : October-2018

**Deliberation in the meeting**

NERTS intimated the schedule as below:

Bid Sale: July-2018

OBD: September-2018

Tent. LOA: October-2018

Tender document under preparation.

However, in view of development as recorded in D-37, it was agreed to keep the item in abeyance.

***The Sub-Committee noted as above.***

***Action: NERTS.***

**D.39. Procurement of DCD:**

In the 145<sup>th</sup>. OCC meeting, NERTS intimated that the procurement would have to be made under quantity variation to existing LOA which involve GST amendment to the old LOA also.

The schedule: -

Tentative date of issue of Amendment: 14.07.2018

Tentative date for GST LOA: 07.08.2018

Tentative supply: September-2018

**Deliberation in the meeting**

NERTS intimated the schedule as below:

Issue of Amendment: July-2018

GST LOA: August-2018

Supply: Septemer-2018

Forum requested NERTS to adhere to the target considering shortage of DCD.

***The Sub-Committee noted as above.***

***Action: NERTS.***

**D.40. Erratic reading of SEM:**

1. Dullavcherra end of 132 KV Dullavcherra-Dharmanagar feeder
2. Jiribam(PG) end of 132 kV Jiribam(PG)-Jiribam(Manipur)
3. Dimapur(PG) end of 132 Dimapur(PG)-Bokajan(Assam)
4. Imphal(PG) end of 132 kV Loktak feeder

**Deliberation in the meeting**

NERTS intimated as below:

- i.** Dullavcherra end of SEM : Issue resolved. Problem was not with SEM but with phase association.
- ii.** Jiribam (PG) end SEM of Jiribam(State): Checked and found O.K. in 15 min. block Data. The SEM was replaced as recommended by Forum.
- iii.** Dimapur(PG) end of Bokajan Feeder: Checked in 15 min. block and found O.K. Variation in recording to be checked.
- iv.** Imphal(PG) end of Loktak : Checking details by 18.07.2018

NERLDC intimated that that the data would be checked and accordingly feedback would be given to NERTS.

***The Sub-Committee noted as above.***

***Action: NERTS.***

**D.41. Commissioning of RS-485 scheme in all ISGS of NER:**

NERTS intimated following in 145<sup>th</sup>. OCC meeting:

Tentative Bid Sale: July-2018

Tentative OBD: September-2018

Tentative LOA: October-2018

**Deliberation in the meeting**

NERTS intimated the schedule as below:

Bid Sale : July-2018

OBD : September-2018

Tent. LOA : October-2018

Tender document under preparation.

However, in view of development as recorded in D-37, it was agreed to keep the item in abeyance.

***The Sub-Committee noted as above.***

***Action: NERTS.***

#### **D.42. Installation of SEM for 33/11 KV Bhutan feeder in Assam system**

Following were recorded in 145<sup>th</sup>. OCC meeting:

APDCL thanked NERTS for the cooperation in this regard for installation of meter.

Director/SE(O&P), NERPC intimated that a meeting with ERPC would be scheduled on this.

#### **Deliberation in the meeting**

Installation Completed by POWERGRID. NERPC to convene meeting with ERPC

***The Sub-Committee noted as above.***

***Action: NERPC.***

#### **D.43. Time drift in SEMs.**

Status of large time drift as discussed in 145<sup>th</sup>. OCC meeting is as below:

- a) NTPC-BgTPP (main meters time drift of about 8 minutes)
- b) Bongaigaon (PG) (in the range of 10 minutes)
- c) Dimapur (PG)
- d) Imphal (Manipur) (in the range of 10-12 minutes)
- e) 79 tilla (Tripura) (in the range of 10-12 minutes)
- f) Silchar (PG) (in the range of 10-12 minutes)
- g) Rangia / Motonga (in the range of 10-12 minutes)
- h) Nirjuli(PG) (in the range of 15-25 minutes)
- i) Agartala (in the range of 10-12 minutes)
- j) Salakati (in the range of 5 minutes)
- k) PK'Bari (in the range of 10-12 minutes)
- l) Imphal(State end) (in the range of 10-12 minutes)

NERTS intimated in 145<sup>th</sup>. OCC meeting as below:

Bongaigaon (PG): Regularly being done.

Dimapur (PG): Drift correction started.

Nirjuli (PG): Drift correction regularly carried out.

Rangia/Motonga: Correction will be started from this week.

Decisions in 145<sup>th</sup>. OCC meeting:

Regarding Silchar (PG), as Elster meters were there and time correction cannot be done, it was agreed that all meters would be replaced by L&T make after procurement of DCDs.

Regarding NTPC-BgTPP, it was agreed that POWERGRID-Bongaigaon would extend one-time assistance in providing guidance for time correction of SEMs.

It was agreed that the two large time drifted main meters in 400 KV BgTPP-Bongaigaon D/C lines would be replaced by new Meters. Also two Elster make check meters in these lines would be replaced by L&T make meters.

**Deliberation in the meeting**

NERTS intimated the following:

Time drifts regularly carried out. PG Team planned to visit NTPC on 16.07.2018. However, NTPC team was not ready. On NTPC's readiness PGCIL team will visit any time for time drift correction procedure demonstration. SEM meter replacement planned by 17<sup>th</sup> -July-2018.

***The Sub-Committee noted as above.***

***Action: NERTS.***

**D.44 Replacement of SEMs.**

2 SEMs at Palatana are reported faulty and the same need to be replaced.

It was agreed in 145<sup>th</sup>. OCC meeting that two defective SEMs at OTPC, Palatana would be replaced by new Meters. It was also agreed that one spare SEM would be provided to OTPC to enable quick replacement in case of any malfunctioning while providing time correction command.

**Deliberation in the meeting**

NERTS intimated the following:

GST diversion for 3 nos. SEMs under process. Expected to dispatch by this week.

***The Sub-Committee noted as above.***

***Action: NERTS.***

**D.45 Billing for SEMs / DCDs / Accessories procured by POWERGRID-NERTS**

It was agreed that POWERGRID-NERTS would raise bills to all the States of NER in proportion to weighted average entitlement from NER ISGS. For procurement during a particular year, weighted average entitlement as on 31<sup>st</sup>. March of the year would be considered. For example, for all procurement during 2016-17, weighted average entitlement as indicated in the REA of March'17 would be taken for billing.

**Deliberation in the meeting**

It was intimated that NERTS would raise bills as agreed in 145<sup>th</sup>. OCC meeting.

***The Sub-Committee noted as above.***

***Action: NERTS.***

**D.46 Utilization of Laptop for Metering**

Fourteen no. of Laptops were distributed for exclusive use in Metering activities in June'17. It is observed that there is no response from Samaguri and 79 Tilla regarding utilisation of the Laptops. For Samaguri & 79 Tilla SEM data are still being downloaded and sent to NERLDC by Powergrid personnel.

Matter may be discussed to withdraw the Laptop(s) in case of non-utilisation

**Deliberation in the meeting**

TSECL representative stated that there were some issues with Laptop at 79 Tilla and matter could not be resolved by local Powergrid personnel. TSECL was advised to bring the Laptop to Shillong / OCC meeting in case problem cannot be resolved locally.

AEGCL was advised to take up the matter with Samaguri regarding non-utilization of the Laptop for Metering purpose.

***The Sub-Committee noted as above.***

***Action: AEGCL/TSECL.***

**D.47 Bilateral transaction of power in between APDCL and Arunachal Pradesh:**

***(a) Supply at 54<sup>TH</sup> Battalion ITBP campus, Bhalukpong:***

The 54<sup>TH</sup> Battalion ITBP campus located at Bhalukpong, Assam has been under urgent need of electricity for its entire campus area. APDCL has already taken up

with Arunachal Pradesh (AP) Power Department for drawl of 1 MW of power under bilateral arrangement through single point supply.

Considering the nature of the service of ITBP, the Forum is requested kindly to impress upon Power Department of AP to look into the matter on priority basis and do the needful.

(b) ***Supply at Namchang Tea Estate;***

It is noticed that Namchang Tea estate located in Dibrugarh District of Assam is drawing power from Deomali Sub-station of AP as consumer of AP which is against the provisions of Electricity Act' 2003. Moreover, there is a standing decision in the 6<sup>TH</sup> NERPC meeting under **Agenda Item 3.1** that such inter-state power supply should take place under bilateral mode between the states and bill be raised by the exporting state on the importing state at its bulk tariff. Extract copy of the Minutes is enclosed as **Annexure – D.47** for reference of the Forum.

The matter has already been taken up with the Power Deptt. of AP and AP has also agreed in principle but yet to be implemented.

The August Forum is requested kindly to advise the Power Deptt., AP to do the needful in line with the decision of RPC Forum.

**Deliberation in the meeting**

CGM, APDCL that the two issues demand urgent attention. Since no representative from DoP Ar. Pradesh was present the matter could not be discussed. Member Secretary, NERPC informed that CCM of NERPC is slated to be held in the last week of July'18 in Itanagar and requested APDCL to submit the agenda items as such.

***The Sub-Committee noted as above.***

***Action: APDCL.***

**D.48 Requirement of Regional Spare Transformer and Reactor:**

Under various North Eastern Region Strengthening Scheme (NERSS) following Transformers and Reactors are going to be installed in NER by POWERGRID:

**Transformer**

- a. Two (2) nos. of 500MVA, 400/220kV, 3-Phase Transformer at Misa (PG) Substation.
- b. Two (2) nos. of 500MVA, 400/220kV, 3-Phase Transformer at Mariani (PG) Substation.

**Bus Reactor**

- a. One (1) nos. of 125MVAR, 420kV, 3-Phase Bus Reactor at Balipara (PG) Substation.
- b. One (1) nos. of 125MVAR, 420kV, 3-Phase Bus Reactor at Bongaigaon (PG) Substation.
- c. One (1) nos. of 125MVAR, 420kV, 3-Phase Bus Reactor at Silchar (PG) Substation.
- d. One (1) nos. of 125MVAR, 420kV, 3-Phase Bus Reactor at Imphal (PG) Substation.

However, there is no regional spare of above rating Transformer and Reactor in NER which is likely to cause severe operational problem of Grid in the event of breakdown.

Accordingly, considering remoteness of the NE Region and also, longer lead time for repair / procurement of Transformer and Reactor, it is proposed to procure the following Transformers & Reactors as Regional Spare in NER against central sector NER transmission system in line with the procurement carrier out in earlier occasions obtaining approval of NERPC and Standing Committee:

- (a) one (1) no. of 500MVA, 400/220kV, 3-Phase Transformer and
- one (1) no. of 125MVAR, 420kV, 3-Phase Reactor

**Deliberation in the meeting**

The forum approved in-principle and referred to next SCM/RPC meeting.

***The Sub-Committee noted as above.***

***Action: NERPC.***

**D.49 O&M expenses for Additional 132 KV line Bay at Loktak Power station:**

In accordance with the meeting of 5th Standing committee held on 08.08.2015 and after the joint survey of switchyard of Loktak Power station by NHPC Ltd and MSPCL, 132 KV additional bay is being constructed at the switchyard of Loktak Power station by MSPCL. As per the minutes of 5th SCM (attached at **Annexure-D.49**), this bay would be under the scope of MSPCL. In view of this, O&M expenses of this additional bay are required to be borne by MSPCL. Accordingly, necessary arrangement may be done by MSPCL.

**Deliberation in the meeting**

It was decided that within two months O&M agreement would be signed by MSPCL & NHPC. Subsequently the modalities for bay construction, operation and maintenance would be sorted out at the ground level.

***The Sub-Committee noted as above.***

**Action: MSPCL/NHPC.**

**ADDITIONAL AGENDA FROM OTPC**

**D.50 Taking SPS-3 into service:**

OTPC team visited Silchar SS on dated 28<sup>th</sup> June 2018 and the purpose of the visit was to find Possibility of taking SPS-3 into service.

The Key Observation was perceived during visit

- 400/132 KV 315 MVA ICT-3 commissioning job is under progress, was planned to charge on 29<sup>th</sup> June 2018, not charged till date.
- 220V DC SY control, supply was upgraded from 850 Ah to 1250 Ah in order to incorporate the controls of to be commissioned new ICT-3 and 400 KV GIS.
- PGCIL has completely transformed the SPS-3 logics from hard wire to software logic in SCADA, however the logic is not checked as SPS-3 is disable condition from Palatana end.
- Since commissioning activities are in progress for 400 KV GIS and ICT-3 at Silchar SS, Data and logics for upcoming systems are uploaded in SCADA on regular bases during uploading new Data and logics they need to restart the system so all the existing and upcoming BCU get restart, among all BCU, 400 KV Palatana line-1 BCU suspected to send DT signal to Palatana via 400 KV line (Suspected).

Way forward to take SPS-3 into Service:

- Presently, SPS-3 is incorporated in BCU of Palatana 400 KV Line-2, if the contact of the BCU is suspected to be faulty, we need to confirm before taking SPS-3 into service.
- For confirmation for BCU faulty, it is proposed that suspected BCU multiple restarting to be done in coordination with Silchar SS and OTPC with keeping SPS-3 disable condition, in consultation with NERPC/NERLDC.
- If fault on BCU established, then SPS-3 DT signal can be shift from BCU of Palatana Line-1 or faulty BCU can be replaced, and SPS-3 can be taken into service after corrective measure.

- If fault on BCU not established, we can consider the proposal of special meeting on SPS-3 held on 03/05/2018 at Shillong and discussion in 145<sup>th</sup> OCC meeting.

Please find MOM between OTOC and Silchar SS officials in this regard.

**Deliberation in the meeting**

Pls refer to discussion in item **D.5**.

***The Sub-Committee noted as above.***

**D.51 Shutdown of Palatana:**

Sr. Manager, OTPC informed that due to pipeline maintenance there would be S/D of OTPC units from 23<sup>rd</sup> Aug 2018 to 9<sup>th</sup> Sept 2018. The forum noted and requested OTPC to once again take approval in the 147<sup>th</sup> OCC.

***The Sub-Committee noted as above.***

***Action: All SLDCs, DISCOMs***

**Date & Venue of next OCC meeting**

It is proposed to hold the 147<sup>th</sup> OCC meeting of NERPC on second week of August, 2018. However, the exact date and venue will be intimated in due course.

The meeting ended with thanks to the Chair.

\*\*\*\*\*

**Annexure-I****List of Participants in the 146<sup>th</sup> OCC Meetings held on 17<sup>th</sup> July, 2018**

SN	Name & Designation	Organization	Contact No.
	<b>No Representatives</b>	<b>Ar. Pradesh</b>	-
1.	Sh. Z.A. Choudhury, CGM, SLDC	Assam	09435371734
2.	Sh. J. Baishya, CGM, APDCL	Assam	-
3.	Sh. Dipesh Ch. Das, AGM (LDC)	Assam	09954110254
4.	Sh P. Saha, DM, SLDC	Assam	09435561717
5.	Sh. Nabanit Hazarika, AGM	Assam	09435386310
6.	Sh. K. Goswami, Consultant, APDCL	Assam	08638487200
7.	Ms. Jayela Wahengbam, AM, SLDC, MSPCL	Manipur	09856875084
8.	Smti. Laishram Ritu, Manager, SLDC	Manipur	09612882984
9.	Sh. T. Gidon, EE, SLDC	Meghalaya	09774479956
10.	Sh. B. Nikhla, EE, SP, MePTCL	Meghalaya	09436314163
11.	Sh. A.G. Tham, AEE, MePTCL	Meghalaya	09774664034
12.	Sh. Alokesh Koch, AEE, SLDC	Meghalaya	-
	<b>No Representatives</b>	<b>Mizoram</b>	-
13.	Sh. Nitovi A. Wotsa, EE (Trans.), DMR	Nagaland	09436004928
14.	Sh. Debabrata Pal, Sr. Manager	Tripura	09436500244
15.	Sh. Joypal Roy, Sr. Manager (E/M)	NEEPCO	09435577726
16.	Sh. T.S. Singh, Executive Director (ED)	NERLDC	09436302717
17.	Sh. N.R. Paul, GM	NERLDC	09436302723
18.	Sh. R. Sutradhar , DGM (MO)	NERLDC	09436302714
19.	Sh. Ankit Jain, Sr. Engineer	NERLDC	09436335381
20.	Sh. S.C. De, AGM	NERLDC	09436325369
21.	Sh. Keshab Borah, Asst. Engineer	NERLDC	07002323608
22.	Sh. Jerin Jacob, Engineer	NERLDC	09402120113
23.	Sh. A. Patir, GM	PGCIL	-
24.	Sh. P.Kanungo, DGM	PGCIL	09436302823
25.	Sh. U.Kataki, AGM	PGCIL	09435505418
26.	Sh. S. Paul, Manager	PGCIL	-
27.	Sh. Mohd. Faroque, Manager (Mech.)	NHPC	09871992115
28.	Sh. Akhil Ch. Deke, Manager ( C)	NHPC	07085483016
29.	Sh. Narendra Kr Gupta, Sr. Manager (O&M)	OTPC	09774253426
30.	Sh. Soham De, AM (O)	OTPC	07742850637
31.	Sh. Kangkan Paul, Dy. Manager	NTPC	09435029230
32.	Sh. Sunny Kumar, Kreate Technologies	Kreate Technologies	09818954768

33.	Sh. Shashwat Srivastuva, Kreate Technologies	Kreate Technologies	09650083985
34.	Sh. P.K.Sarma, Kreate Technologies	Kreate Technologies	09435344083
35.	Sh. P.K. Mishra, Member secretary	NERPC	09968380242
36.	Sh. B. Lyngkhoi, Director/S.E (O&P)	NERPC	09436163419
37.	Sh. S. Mukherjee, AEE	NERPC	08794277306
38.	Sh. S. Imam, AEE	NERPC	08986666366
39.	Sh. S. Ranjan, AE	NERPC	-

## ANNEXURE-D.19

### Proceedings of the Sub-group meeting on 29.06.2018

The list of Participants is attached at Annexure-I.

The following disturbances/ important trippings were discussed:-

#### 1. 220kV Misa blackout and Loss of Kopili & Khandong generation on 21.05.18

Findings of the Sub-group:-

- Feeders connected to Bus-A: 220kV Misa-Dimapur-II, 400/220 kV 315MVA ICT-I, 220kV Misa-Samaguri-I, 220kV Misa-Kopili-I, 220kV Misa-Byrnihat-I, 220kV Misa-Mariani Old
- Feeders connected to Bus-B: 220kV Misa-Samaguri-II, 220kV Misa-Byrnihat -II, 220kV Misa-Kopili-III, 220kV Misa-New Mariani, 220kV Misa-Dimapur-I, 220kV Misa-Kopili-II, 400/220kV 315MVA ICT-II.
- The detail sequence of events/tripping of each element with DR timings is attached at **Annexure-II**.
- 220kV Misa- Old Mariani (AS) was under shutdown with earth switch connected at both ends. Bus isolator (of Bus-A) was in closed condition.
- Bus Bar Protection of Bus-B kept blocked beforehand due to spill current.
- The Y-ph PT connected to 220 kV bus B blasted causing bus fault. Subsequently it converted into R-Y-N fault and then into a R-Y-B fault. Surface flashover occurred on R&B Ph-PTs due to explosion of Y-ph PT and spilling of burning insulation oil on them.
- Since Bus-bar protection was blocked, all the feeders connected to Bus-B at Misa tripped either at remote ends on Z-2 or at local end on Z-4 at 540 msec of fault initiation. ICT-2 which was feeding the fault tripped on backup protection after 2 sec.
- Due to circulating(induction from 220kV New Mariani(PG)) current flow in 220kV Old Mariani, LBB protection for Old Mariani feeder at Misa operated, which triggered opening of remote breakers at 220kV Misa Bus-A. Thus fault feeding from Bus-A was cleared at 320ms of fault initiation.
- ICT-2 connected to Bus-B continued to feed the fault for 2s until B/U protection operated.
- Deterioration in voltage profile of 220kV Bus at Misa, Sarusajai & 400kV Misa Bus as per PMU was analysed and presented by NERLDC. While charging 220 kV Misa – Byrnihat 2 line at 16:30 Hrs from Misa end, fault was extended to healthy bus (Bus-A) due to

closing of Bus-A isolator without opening Bus-B isolator. This resulted in tripping of all the restored lines emanating from 220 kV Misa.

Remedial Actions to be taken:-

- CVT and CT are very old at Misa. All PT&CT including the damaged ones are to be replaced at the earliest.
- The residual life assessment is to be carried out by NERTS, POWERGRID for all major equipment as per clause no. 30 of CEA (Grid Standards) regulations, 2010
- ICT-2 delayed fault clearance is to be analysed by NERTS.
- O/C settings for 132 kV Khliehriat – Khandong -I to be checked.
- Z-2 overlapping of 220 kV Misa - Samaguri and 220 kV Samaguri - Sarusajai to be checked.
- At Kopili S/S, Kopili units are to be distributed in both buses and accordingly 220 kV Kopili - Misa lines & ICT are to be distributed by NEEPCO.
- At Khandong S/S, Khandong units are to be distributed in both buses and accordingly all 132 kV lines emanating from Khandong are to be distributed by NEEPCO.
- Operating procedure of all elements is to be made available to the control room operator
- Bus isolators are to be opened before aviling shut down of any element/bay.
- 

Actions already taken:

- Necessary steps have been taken by NERTS to ensure that bus isolators do not remain in closed condition when line is under shutdown.

## 2. Faults in 132 kV 79 Tilla - Rokhia D/C

Findings of the Sub-group:-

- Fault in the line is tripping of 132kV Monarchak-Rokhia line.

Remedial Actions to be taken:-

- Rokhia E/F relay to be made directional. Or
- Directional Earth Fault function of DPR is to be enabled and then disable backup earth fault relay (EM).

## 3. Tripping of 400kV Silchar-Byrnihat and 400kV Silchar-Azara lines

On 18.06.2018(01:39 hrs) both 400 kV Silchar-Azara line and 400 kV Silchar-Byrnihat line as well as 400 kV Bongaigaon-Byrnihat line tripped on DP. This led to grid disturbance in Southern part of NER grid.

Findings of the Sub-group:-

- Both 400 kV Silchar-Azara line and 400 kV Silchar-Byrnihat line tripped on R-Y-B-E fault. This was due to lightning.
- However fault locations for both the lines were different.
- 400kV Bongaigaon-Byrnihat tripped on Z-I DP from Bongaigaon end due to relay overreach (Micom P444), when parallel line is earthed at both ends.
- R-ph CB failed to open at Dimapur end of 132 kV Dimapur - Imphal line. LBB operated at Dimapur(PG). All elements emanating from 132 kV Dimapur(PG) tripped. Imphal end of 132 kV Dimapur - Imphal line tripped on Earth fault Protection.

Remedial actions to be taken:-

- Tower top patrolling by NERTS to be undertaken to identify the exact location of the fault.
- Reason for DPR (Main-2) overreach at Bongaigaon is to be investigated by NERTS.
- Earthing through chemical treatment/installation of TLSA in the lightning prone areas with high tower footing resistance for both 400 kV Silchar-Azara and 400 kV Silchar-Byrnihat is to be done after the rainy season.
- A separate group of settings for Micom P 444 to be activated with Zone 1 setting =60% when the parallel circuit is earthed at both ends for maintenance.
- Reasons for non-operation of R-ph CB for 132kV Dimapur-Imphal to be investigated by NERTS.
- Enabling SPS-3 at Palatana and Silchar

4. Repeated trippings of 132 kV Doyang-Mokokchung line and 132 kV Mokokchung-Mokokchung D/C

Findings of the Sub-group:

- Due to downstream faults at Mokokchung(NAG) ,132 kV Doyang-Mokokchung line and 132 kV Mokokchung-Mokokchung D/C are tripped.

Remedial actions to be taken:

- As Mokokchung(NAG) has conveyed the impossibility of reducing settings further, timings at 132 kV Mokokchung(PG) and 132kV Doyang to be increased.
- Relay and protection system healthiness of all elements to be checked at Mokokchung(NAG).

#### 5. Tripping of 132 kV Khliehriat-Khliehriat D/C on 09.05.18

On 09.05.18 at 08:48 hrs 132 kV Khliehriat-Khliehriat D/C tripped as well as 132 kV NEHU-Mawlai line and 132 kV NEHU-Umiam line

#### Findings of the Sub-group:

- As intimated by MePTCL, fault was in Khliehriat(MePTCL) Bus.

#### Remedial actions to be taken:

- Reasons for non-tripping of 132 kV NEHU-Khliehriat line from NEHU end and 132 kV Mustem – Khliehriat line from Mustem end are to be investigated.
- Reasons for non-operation of bus bar protection at Khliehriat(ME).
- In separate incident(s) 132 kV Khliehriat-Khliehriat Line 2 is tripping on Z-III. However, Line 1 was not tripping indicating fault was cleared by the protection of faulty section (beyond 132 kV Khliehriat(MePTCL)). So, Z-III timing of 132 kV Khliehriat (PG) for 132 kV Khliehriat-Khliehriat Line 2 is to be checked.

#### 6. Tripping of Silchar ICTs

Repeated trippings of Silchar ICTs have observed in June.

#### Findings of the Sub-group:

- All opto inputs to Main protection (Schneider P633 relay) viz. Bucchoz, PRD etc. are becoming high upon restart of Main-I relay of the two ICTs. This is resulting in tripping of ICT.

#### Actions already taken:

- Matter has been referred to OEM. Meanwhile to prevent such mal operation, delay of 19 mS has been introduced to all binary inputs.

#### 7. Tripping of ICT at Bongaigaon(PG) and 400 kV Bongaigaon - BgTPP 2 line

Root cause: Due to DC earth fault (cable fault).

This issue has been attended.

8. Jiribam(PG) blackout on 6th Jun'18

Root cause: Fault in 132 kV Jiribam(PG) – Pailapol line.

DPR at Jiribam(PG) picked up in Z-3.

Other lines from Jiribam(PG) also picked up the fault in Z-3 from remote end.

Remedial Action:

Z-3 timing of 132 kV Jiribam – Pailapol line has been reduced to 200 msec at Jiribam(PG)

9. Tripping of 400 kV Silchar – Palatana D/C on 11<sup>th</sup> May'18

Root Cause: Jumper failure of 400 kV Silchar – Palatana - 1 line at Loc No 590

Remedial Measures: Non attempt of Auto recloser at Palatana of 400 kV Silchar – Palatana 2 line to be investigated by OTPC

10. Tripping of 220 kV Misa – Byrnihart 1 line on 9<sup>th</sup> May'18

Root Cause: As informed by NERLDC, no fault was observed in the PMUs. Tripping was likely Mal-operation of earth fault relay at Misa.

Remedial Measures: This issue of earth fault relay is to be attended by NERTS.

Annexure-I

List of Participants in the Sub-Group Meeting held on 29<sup>th</sup> June, 2018

SN	Name & Designation	Organization	Contact No.
1.	Sh. kitbok Kynjing, AE, MePTCL	Meghalaya	09485170070
2.	Sh. Subhash Kumar, Engineer	NERLDC	09485185898
3.	Sh. Chitra Thapa, Engineer	NERLDC	08135989964

4.	Sh. Jerin Jacob, Engineer	NERLDC	09402120113
5.	Sh. Samar Ch De, AGM	NERLDC	09436335367
6.	Sh. H.Talukdar, CM	NERTS	7002353946
7.	Sh. Nayan Jyoti Dev, Dy.Manager	NEEPCO	09435577727
8.	Sh. Ankit Jain, Sr. Engineer	NERLDC	09436335381
9.	Sh. Keshab Borah, AE	NERLDC	07002323608
10	Sh. F. Iqbal, EE	NERPC	
11	Sh. S. Mukherjee,AEE	NERPC	

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 07/SM/2018 (Suo-Motu)**

**Coram:**

**Shri P.K. Pujari, Chairperson  
Shri A. K. Singhal, Member  
Shri A. S. Bakshi, Member  
Dr. M. K. Iyer, Member**

**Date of Order 16<sup>th</sup> of July, 2018**

**in the matter of**

Pilot Project on 05-Minute Scheduling, Metering, Accounting and Settlement for Thermal/Hydro, and on Hydro as Fast Response Ancillary Services (FRAS).

**ORDER**

The Electricity Act, 2003 entrusts on the Central Commission the responsibilities inter-alia of regulating the inter-State transmission of electricity, specifying grid code and also enforcing standards with respect to quality, continuity and reliability of service by licensees. The Act and the policies framed under the Act have also cast on the Commission, the responsibilities of promoting renewable energy.

2. The Government of India has set a target of achieving RE capacity to the tune of 175 GW by 2022. The Commission has taken several initiatives to ensure integration of variable RE generation of this magnitude. The framework for forecasting, scheduling and deviation settlement for wind and solar has been put in place. To enable thermal generators to provide balancing support, necessary



regulatory framework has been provided defining technical minimum for such plants and commensurate compensation for flexing such (thermal) generation up to technical minimum. The Commission has also issued Suo Motu order delineating the road map for operationalizing reserves. Various types of reserves, viz., primary, secondary and tertiary reserves are required to balance variable RE generation. The primary reserves have been ensured through suitable amendments in the (Indian Electricity Grid Code) IEGC which require the generating stations to keep such reserves for system security, by not scheduling beyond their installed capacity. For secondary control also the Commission has approved a pilot project on Automatic Generation Control (AGC). As regards tertiary control, the Commission has issued regulations on Reserves Regulation Ancillary Services (RRAS) which has been in operation for more than a year now.

3. For seamless integration of variable RE generation across the country, it is essential that a framework commensurate with inter-State framework must be implemented at the State level as well. The Forum of Regulators (FoR) has taken an initiative in this context and has constituted a Technical Committee to develop complementary intra-state level regulatory framework for RE integration. The FOR Technical Committee has been deliberating on various issues at stake in the context of implementation framework for renewable at the State level.

4. The FoR in its 63<sup>rd</sup> Meeting held on 9<sup>th</sup> April, 2018 considered *inter-alia* some of such recommendations of the FOR Technical Committee. The relevant extracts from the minutes of the FOR meeting are reproduced below:-

***“Sub-Group for Implementation of 5-Minute Scheduling, Metering, Accounting And Settlement***

*.....It was informed that the FOR Technical Committee members appreciated the need to move to 5-minute scheduling and settlement in view of the increasing RE penetration. The international experience evinces that shorter dispatch and settlement period such as 5-minutes offers a lot of advantages, particularly in terms of reduction in the requirement of reserve, robust price discovery and bringing out the value of flexibility. In advanced markets like in Australia and USA, the framework of 5-minute scheduling, dispatch and settlement has already been introduced. The cost benefit analysis of implementation of the 5-minute metering/ scheduling framework at the inter-State level was also presented by POSOCO.*

*A sub-Group constituted by the Committee has also examined the proposal and suggested that, on a pilot basis, 5-minute capable meters may be installed at say, 4-5 locations in each Region to gain practical experience in 5-minute metering, interfacing requirements/ file interchange formats and develop data analytics/ tools for 5-minute metering, data validation, reporting, etc. It was recognized that pilot project would help in formulation/ refinements of Technical specifications and Software Requirement Specifications (SRS) for Metering Software at RLDCs and Accounting Software at RPCs for 5-minute metering.*

*The Forum appreciated the initiative and requested CERC and CEA to take the initiative forward with pilot studies as suggested at the earliest. Results may be shared with the Forum to enable the SERCs to take similar action at the State level.*

### ***“Introduction of Fast Response Ancillary Services (FRAS) From Hydro Generating Stations***

*.....The marginal cost for hydro generation is almost zero and the segregation of fixed and variable charges in case of hydro is only notional. Thus, the present model of ancillary services, which relies on payment of fixed charges, variable charges and incentive is incompatible for hydro stations. Therefore, in order to harness the flexibility and fast response provided by storage and pondge hydro, a framework of Fast Response Ancillary Services for providing frequency regulation services was proposed.*

*The Forum endorsed the recommendation of the Technical Committee for pilot studies on FRAS for Hydro (along with pilot studies on 5-Minute Scheduling, Metering, Accounting and Settlement) in the States of Andhra Pradesh, Rajasthan, Telangana, Uttar Pradesh and West Bengal.”*

5. Subsequently, POSOCO through letter no. POSOCO/NLDC/ASP/2018/47 dated 9th May 2018 has also proposed to implement pilot on FRAS through Hydro projects along with 5-Minutes Scheduling, Metering, Accounting and Settlement and has requested for suitable directions from the Commission. POSOCO has stated that the concept of Fast Response Ancillary Services (FRAS) for hydro as also the 5-Minutes Scheduling, Metering, Accounting and Settlement were discussed in the FOR Technical Committee meetings and at a Special Meeting with various Central Hydro Generators. A broad consensus has been achieved amongst the generators on implementation of FRAS. Both these concepts have also been endorsed by the FOR.



6. The Commission has taken cognizance of the recommendations of the Forum of Regulators (FoR) and the proposal of POSOCO and has decided to initiate suitable actions in this regard.

## **Analysis & Decision**

### **A. 05-minute- Scheduling, Metering, Accounting and Settlement**

7. The Commission observes that there are a number of advantages of implementing 5-minute scheduling. Various studies have recognized that shorter despatch and settlement period such as 5-minute offer advantages, particularly in terms of reduction in the requirement of reserves, reduction in variability, robust price discovery closer to real time and bringing out the value of flexibility. 5-minute scheduling has reportedly helped in reducing regulation requirements to below 1% of peak daily load in many ISO/RTOs.

8. In this context, it would be pertinent to mention the following observations in the NITI Aayog Report of the Expert Group on 175 GW by 2022:-

*“Scheduling and Dispatch: Through both practice and theory, it has become evident that grids that are operated in a manner where scheduling and dispatch are implemented over short time durations (e.g., as low as five minutes) have significantly lower overall costs to consumers as the need for ancillary resources decreases.*

*Currently, in India, scheduling occurs on a day-ahead basis while dispatch occurs on a 15-minute basis. System operations technologies and protocols need to be updated to enable*



*five-minute scheduling and dispatch of all resources connected to the grid and automated incorporation of RE forecasts.*

*It should be noted that accuracy of RE forecasts is significantly higher the closer they get to dispatch. Consequently, the ancillary service requirements will also be lower”*

9. The Commission recognizes that scheduling closer to real time could help manage power system operation better and facilitate smooth grid integration of RE. Also, the shorter duration scheduling, metering, accounting and settlement would be necessary for fast response technologies like battery storage, demand response, etc. The Commission believes that the framework of 5-minute scheduling is likely to bring in better granularity in grid management. This could reduce reserves requirement, set pathways for newer technologies, robust price discovery closer to real time and bring out the value of flexibility. **The Commission appreciates the advantages of closer to real time scheduling and has accordingly decided to introduce the pilot project for implementing 5-minute scheduling, metering, accounting and settlement for Thermal with AGC installations and Hydro Power Stations**

#### **B. Fast Response Ancillary Services (FRAS) From Hydro Generating Stations**

10. The Commission vide Order dated 13.10.2015 in Petition no 11/SM/2015 charted a roadmap for operationalization of generation reserves in the country. It was envisaged that each region should maintain primary, secondary and tertiary reserves. Primary response of 5% is envisaged from all the generating stations. For Secondary frequency response, it is essential that Automatic Generation Control is provided. The Commission vide Order dated 07.12.2017 in Petition no 79/RC/2017

approved implementation of the AGC pilot project.

11. In so far as tertiary control is concerned, the Commission has introduced the Reserves Regulation Ancillary Services (RRAS). This is primarily a framework for slow tertiary reserves at the ISTS level where actions at the power plant happen after 16-30 minutes as advised by National Load Despatch Centre (NLDC) in coordination with Regional Load Despatch Centres (RLDCs). The Commission recognises the need for introduction of Fast Response Ancillary Services.

12. The present framework of Ancillary Services predominantly utilizes the thermal power stations which have ramping limitations and as such there is a need for a fast response ancillary service. Hydro stations are “energy limited resources” unlike the thermal stations (coal based) which are “ramp limited resources”. Hydro stations are also subject to limitations/constraints in terms of water inflows as well as the quantum of water that can be released based on reasons other than power generation requirements.

13. The CEA (Technical Standards for Connectivity to the Grid) Regulations, 2007 and CEA (Technical Standards for Connectivity to the Grid) Regulations, 2013 mention the following:-

*“All generating machines irrespective of capacity shall have electronically controlled governing system with appropriate speed/load characteristics to regulate frequency. The governors of thermal generating units shall have a droop of 3 to 6% and those of hydro generating units 0 to 10%.”*

14. Hydro stations can thus respond very quickly and much faster than thermal/gas stations. In



other words, these are more suitable for handling sharp fluctuations such as those observed at the hour boundary. Thus, fast responding ancillary service from hydro stations may be used primarily for ‘regulation service’ from storage/pondage based hydro stations for example to handle the hour-boundary frequency spikes. With increasing quantum of renewable penetration, fast response ancillary can also act as a mechanism to handle the intermittency.

15. In view of the special characteristics mentioned above, the Commission is of the view that the flexibility and fast response provided by storage and pondage hydro could be harnessed under a framework of Fast Response Ancillary Services for providing frequency regulation service. The framework would have the following features.

16. For implementing Hydro Power as FRAS, all constraints and commitments declared by the hydro stations shall be honoured and the total energy delivered over the day shall be maintained as declared by the hydro station. The total energy dispatched under FRAS shall be squared off by the end of the day. Triggering of FRAS shall be based on the balance energy available in the hydro station. The Schedules of the beneficiaries shall not be disturbed in the despatch of FRAS and the Payment for FRAS shall be based on ‘mileage’ basis. The mileage during the day shall be computed as follows:

(a) Net energy  $E_{\text{net}} = \Sigma E_{\text{up}} - \Sigma E_{\text{down}}$  (in MWh) (should be zero over the day)

(b) Mileage  $E_m = \Sigma |E_{\text{upt}}| + \Sigma |E_{\text{downt}}|$  (in MWh)

No additional fixed charge or variable charges shall be paid for providing FRAS support. Existing fixed charges and variable charges shall continue to be paid by the beneficiaries for the normal schedules as per existing practice. The total energy despatched for hydro under FRAS shall be made zero and



hence, no energy charges shall be payable to the hydro stations.

17. The Commission endorses implementation of a pilot on FRAS for hydro stations with the above features.

### Cost Implication

18. POSOCO has provided cost estimation of implementation of pilot study for 5-minute scheduling and use of Hydro Power as FRAS. Some thermal stations where AGC has been implemented or is proposed to be implemented also to be added for this pilot project in addition to Hydro projects. POSOCO has submitted the estimated cost of ₹ 87 Lakhs for implementation of pilot project on 5-minute scheduling, and ₹ 49.75 Lakhs for FRAS, with the following details:-

#### Cost Estimate for Implementation of Pilot Project on Fast Response Ancillary Service (FRAS) and 05-Minute Metering

Pilot Project for Fast Response Ancillary Service (FRAS) with Hydro Scheduling and Ancillary Services Co-optimization		
At NLDC Control Centre		
S.No.	Title	Approximate Cost (in ₹)
1.	Annual License for Open source, object-oriented web application development platform (Eg. Zend Software)	65,000
2.	Enterprise License for High-level Modeling System for Mathematical Optimization with Solver (Eg. GAMS Optimization Software with CPLEX Solver)	22,75,000



3.	Two Server(s) (Main and Hot Standby) to install all the desired software	24,00,000
4.	Two Workstations	1,70,000
5.	Rack	65,000
<b>Total</b>		<b>49,75,000</b>

<b>Pilot Project for 05-Minute Metering</b>		
<b>5-Minute Main and Check Meters (with AMR feature) to be installed at NTPC Dadri (15 Nos.), THDC Tehri (2 Nos.), NTPC Mouda (14 Nos.), NTPC Simhadri (6 Nos.), NTPC Bongaigaon (4 Nos.), NTPC Barh (4 Nos.), NHPC Teesta (2 Nos.), NHPC Loktak (4 Nos.) generating stations.</b>		
S.No.	Title	Approximate Cost (in ₹)
1.	51x2=102 Meter Nos. (~ ₹ 50,000 /meter)	51,00,000
2.	Spare Meters (20 % of total nos.) = 20 Meter Nos.	10,00,000
3.	Additional costs for installation, upgradation (h/w & s/w) and commissioning (@ 50 %)	26,00,000
<b>Total</b>		<b>87,00,000</b>

Notes:

1. The pilot project for FRAS would cover all the central sector hydro generating stations.
2. The pilot project for 05-Minute metering would cover hydro stations in NR, ER and NER as well as thermal stations in all five regions (identified for AGC installation too).
3. **The cost of the 05-Minute Pilot Metering (Tendering to Commissioning) to be borne by CTU. The cost may be recovered through filing of tariff petition before CERC.**
4. At present, AGC is implemented only in Dadri. Hence, pilot project will include NTPC Dadri initially, though the project cost includes five stations of NTPC. For NTPC Mouda & Simhadri, orders have been placed for AGC implementation. For NTPC Bongaigaon & Barh AGC implementation is yet to be initiated. Therefore, for NTPC Mouda & Simhadri, Bongaigaon and Barh, the pilot study will be done along with AGC implementation subsequently.



19. The Commission notes that the estimated cost for conducting pilot for 5-minute scheduling is about ₹87 Lakhs and for Hydro Power as FRAS is about ₹ 49.75 Lakhs. The cost (estimated ₹ 87 lakhs) for pilot project for 05-Minute scheduling is primarily on account of procurement of meters. CTU shall procure the meters and other equipment and incur costs towards installation, commissioning etc. and claim reimbursement by filing a petition before the Commission. POSOCO has further stated vide its letter dated 5<sup>th</sup> June, 2018 that as an interim measure until the CEA specifications on 5 minute meters are notified, the “Technical Specification for Interface Energy Meters, Automated Meter Reading System and Meter Data Processing for Inter State System in Western Region”, approved in the 34<sup>th</sup>TCC/WRPC meeting held on 27-28 July 2017 in Mumbai may be used for the pilot projects. The cost (estimated ₹ 49.75 Lakh) for pilot project for FRAS for hydro stations is largely on account of procurement software. This shall be borne by POSOCO out of the contingency funds available under RLDC Fees and Charges Regulations.

20. The Commission in the Order dated 29.02.2016 in petition No. 01/SM/2016 in the matter of “Determination of mark-up for delivery of Regulation Up Services, under Central Electricity Regulatory Commission (Ancillary Services Operations) Regulations, 2015, has allowed mark up of 50 paise/unit for participation in Ancillary Service. For Regulation Down Ancillary Services, 25% of variable charges is allowed to be retained by a generator.

21. The Commission in its Order dated 06.12.2017 in the Petition No. 79/RC/2017 in the matter of Automatic Generation Control Pilot project has approved mark up of 50 paise/unit for the generating plant through AGC for providing services under secondary reserves in line with the

experience gained on Reserve Regulations Ancillary Services in Indian grid.

22. The Commission observes that triggering of FRAS would be based on the balance energy available in the hydro station (being zero marginal cost for hydro), whereas the despatch in the case of thermal generators is based on variable charges of a station. The variable charges as paid to the thermal generators for providing ancillary services are not trued up for any subsequent fuel price adjustment. The incentive/mark-up provided to them is expected to take care of such adjustments, if any. The marginal cost for hydro generation is zero and the segregation of fixed and variable charges in case of hydro is only notional. There is no case for any fuel price adjustment for hydro stations unlike in the thermal stations. In view of this, incentive could be paid on the basis of 'mileage' a hydro generator is able to provide as FRAS. For this pilot project, an incentive at the rate of 10 paise per kWh both for 'up' and 'down' regulation shall be provided to the hydro station. At this stage, given the fact that it is only a pilot the Commission is not going into a detailed justification for arriving at the mileage of 10 paise. This is as presented by POSOCO to the hydro generators while explaining the concept of FRAS.

### **Summary of Decision**

23. The Commission is of the view that there is a need for implementing pilot projects on 5-minute scheduling and Hydro Power as FRAS. The Pilot would help gain experience in ancillary services along with providing valuable learning regarding 5-minutes scheduling, metering, accounting and settlement. This pilot will also provide insight for implementation of other competing resources like Battery Storage, Electric Vehicles, Demand Response as Ancillary Services.



Accordingly, the Commission endorses the recommendations made by the FOR and accords approve to the request made by POSOCO for pilot studies on implementation of 5-minute metering and Hydro as FRAS and accordingly directs as follows:

**A. 5-minutes Scheduling, Metering, Accounting and Settlement**

- (a) POSOCO shall implement 5-minute metering covering hydro stations in NR, ER and NER as well as thermal stations with AGC installations in all five regions to gain experience which would help in formulation/refinements of Technical specifications and Software Requirement Specifications (SRS) for Metering Software at RLDCs and Accounting Software at RPCs for 5-minute metering.
- (b) As a pilot, 5-minute metering can be in parallel with 15-minute metering. The Scheduling and Despatch has to be aligned with Settlement process in 5-minutes too and the accounts of both 5-minute and 15-minute shall be kept parallel.
- (c) All future procurements of Interface Energy Meters should ideally have recording at 5-min interval and frequency resolution of 0.01 Hz. They should be capable of recording Voltage and Reactive Energy at every 5-min and should have feature of auto-time synchronization through GPS.
- (d) As suggested by POSOCO, the “Technical Specification for Interface Energy Meters, Automated Meter Reading System and Meter Data Processing for Inter State System in Western Region”, approved in the 34<sup>th</sup>TCC/WRPC meeting held on 27-28 July 2017 in Mumbai may be used for the pilot projects.

(e) As and when CEA Metering Standards for Interface Meters to facilitate 5-minute metering are notified, the same shall be adopted for the pilot projects which have not been taken up till the date of notification of CEA standards. CEA is requested to expedite the notification of amended Metering Standards for interface metering with 05-minute capability.

(f) The Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 mention the following:

*“6(1)(a) All interface meters installed at the points of interconnection with Inter-State Transmission System (ISTS) for the purpose of electricity accounting and billing shall be owned by CTU.”*

Accordingly, CTU shall facilitate the pilot project with installation of 5-minute meters at the pre-identified locations. CTU is directed to complete the procurement and installation of the 05-minute meters in the pilot project by end of August, 2018 in coordination with POSOCO. The cost of such procurement shall be reimbursed to the CTU, as given in paragraph 19 of this Order

**B. Fast Response Ancillary Services (FRAS) From Hydro Generating Stations**

(g) POSOCO shall implement pilot project for FRAS covering all Central sector hydro generating stations which would help in gaining experience in regard to FRAS.



- (h) For this purpose, all constraints declared by the hydro stations shall be honoured and the total energy delivered over the day shall be maintained as declared by the hydro station. The total energy dispatched under FRAS shall be squared off by the end of the day.
- (i) FRAS shall be triggered based on a stack prepared based on the balance energy available in the hydro station. The Schedules of the beneficiaries shall not be disturbed in the despatch of FRAS.
- (j) The RPCs shall issue weekly FRAS accounts along with the RRAS accounts based on the data provided to them by the RLDCs/NLDC. Incentive shall be paid from the DSM Pool on mileage basis at the rate of 10 paise per kWh both for 'up' and 'down' regulation provided by the hydro station.
- (k) All Central sector hydro generators are directed to cooperate and assist POSOCO in successfully conducting the pilot project. The Central sector hydro stations shall follow the FRAS instructions issued by NLDC and the performance would be monitored by RLDCs/NLDC.
24. The above pilot studies may be completed by POSOCO within 6 months of issue of this Order.



25. POSOCO is also directed to appraise the Commission regarding the experience gained in the pilot project in the of report covering all the aspects within six months of implementation of the pilot project.

26. The petition is disposed of in terms of the above directions.

**Sd/-**  
**[M. K. Iyer]**  
**MEMBER**

**Sd/-**  
**[A. S. Bakshi]**  
**MEMBER**

**Sd/-**  
**[A. K. Singhal]**  
**MEMBER**

**Sd/-**  
**[P.K Pujari]**  
**CHAIRPERSON**



Deliberation of the Committee

NHPC representative informed that the allocation of power is done by Ministry of Power.

Member (PS), CEA supported the view of NHPC that the allocation is in the jurisdiction of Ministry of Power. Hence Arunachal Pradesh should approach MOP for the free power allocation of 12 %.

The forum requested NHPC and Arunachal Pradesh to discuss bilaterally and approach MOP for allocation of power.

Deliberation of TCC

***Inter-State understanding and Cooperation in dealing with the consumers: Arunachal Pradesh***

You are aware that people residing on either side of the inter-state borders apply for electricity connection from the concerned states, where power is available. For example, people residing along National Highway-52, where some stretches happens to be inter-state border line, requires electricity from the state, where electricity facility is available on the other side of the road. Not only on humanitarian ground but also to build up cordial relationship between the people residing on either side of the boundary road, it would be unwise to refuse electricity to the needy ones on either side. But in order to systematically enforce the commercial terms and conditions of supply to the consumers across border, both the state governments/ state agencies need to have bilateral understanding of such arrangement, so that, the people can, on one hand get access to electricity and on the other hand abide by the commercial terms and conditions including that of any kind of penalties.

You are therefore requested, kindly to verify from old records, whether such kind of any understanding has ever been taken by the NEREB in the past. If such decision has been taken, a copy of NEREB meetings' minutes may be sent to this office for reference so that, matter could be taken up with the counterpart in Assam. Otherwise, you are requested to include this as an agenda point for next NERPC Board meeting as the issue applies to every inter-state boundaries.

ITEM NO. 3.1

It was agreed that in such cases Power supply to people in both sides should be ensured. However, to take care of existing legal provisions, bulk Power supply should take place between two adjoining States i.e. bill is to be raised by the exporting State at its respective bulk tariff to the importing State. Then it would be responsibility of importing State to realize revenue from its consumers. It was decided that modalities of same would be sorted out bilaterally.

Deliberation of the Committee

***Committee members noted and agreed.***

voltage level at Biswanath Chariali, which is going to become an important station of NER. He added that to meet the growing demand of Assam, a joint study may be carried out to identify the intra-state strengthening requirement in Assam.

- 12.4 After further discussion, it was decided that AEGCL should carry out system studies to identify the intra-state transmission system requirement and share it with CEA and CTU. The need for creation of 220 kV level at Biswanath Chariali would depend on the outcome of the study and would be discussed in subsequent Standing Committee meeting.

**13.0 Construction of two no. of 132 kV line Bays at 132 kV switchyard, Leimatak of NHPC – Agenda by MSPCL**

- 13.1 MD, MSPCL stated that Manipur is drawing its allocated share from Central Sector Generating Stations in NER mostly through (i) Imphal (PG) – Imphal (State) and (ii) Leimatak – Ningthoukhong 132 kV lines. Load Flow Study conducted by PGCIL on the request of Manipur Government with a projected peak demand of 425 MW and additional interstate connectivity of i) Silchar – Imphal (PG) 400 kV D/C line & ii) Imphal (PG) – New Kohima 400 kV D/C line both charged at 132 kV system voltage, shows 97 MW flowing through Leimatak – Ningthoukhong 132 kV S/C line. Also, whenever Manipur draws about 130 MW or above, the flow in this line exceeds its SIL and most of the time SLDC, Manipur has tough time to bring down the power flow in this line to acceptable limit.

- 13.2 He added that to mitigate the constraint in drawing Manipur's share, Manipur State Power Company Limited has taken up the construction of a new Leimatak – Ningthoukhong 132 kV D/C line (2<sup>nd</sup> line) for which construction of two 132 kV line bays at 132 kV switchyard, Leimatak under NHPC is required.

- 13.3 Manager, NHPC informed that at present 9 no. 132 kV bays are existing at their Leimatak generating switchyard, which includes 4 no. feeder bays, 3 no. unit bays, one bus coupler bays and one auxiliary bay . There is space constraint at the generating switchyard.

- 13.4 After further discussion, it was decided that a joint survey by NHPC and MSPCL would be carried out to explore the possibility of space at the generating switchyard for accommodating two no. 132 kV bays for Leimatak – Ningthoukhong 132 kV D/C line. If space is available after the joint survey, NHPC would provide space for 2 no. 132 kV bays and the bays would be under the scope of MSPCL.

**14.0 Construction of two nos. of 400 kV line bay at Imphal (PG) – agenda by MSPCL**

- 14.1 MD, MSPCL stated that to meet the growing load demand of Manipur, MSPCL has taken up the construction of 4x105 MVA, 400/132 kV single phase transformer (one spare) at Thoubal along with the Imphal (PG)-Thoubal 400 kV D/C - 38 km line In the previous Standing Committee Meeting, 400 kV operation of Silchar-Imphal (PG) 400 kV D/C line along with up-gradation of 2x50 MVA 132/33 kV Imphal (PG) S/s to 400 kV by addition of 7x105 MVA 400/132 kV single phase transformers (one spare) was agreed. Construction