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

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

No. NERPC/SE (O)/OCC/2018/***3480-3517*** Dated: September 28, 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, Dongtieh-Lower Nongrah, Lapalang, Shillong -793 006
19. ED (O&M), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
20. ED (Commercial), NEEPCO Ltd., Brookland Compound, Lower New Colony, Shillong-793003
21. ED (O&M), NHPC, NHPC Office Complex, Sector-33, Faridabad,Haryana-121003
22. Vice President (Plant), OTPC, Badarghat Complex, Agartala, Tripura - 799014
23. GM, NERLDC, Dongtieh, Lower Nongrah, Lapalang, Shillong -793 006
24. Member Secretary, ERPC, 14 Golf Club Road, Tollygunge, Kolkata-700033
25. Chief Engineer, GM Division, Central Electricity Authority, New Delhi – 110066
26. Chief Engineer (NPC), NRPC Complex, Katwaria Sarai, SJSS Marg., New Delhi - 110016

Sub: Minutes of 148th OCC Meeting.

Sir/Madam,

Please find enclosed herewith the minutes of 148th OCC Meeting held at Guwahati on the **14th September, 2018** for your kind information and necessary action. The minute is also available on the website of NERPC, **www.nerpc.nic.in**.

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

Encl: As above

भवदीय/Yours faithfully,

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 148th OPERATION COORDINATION SUB-COMMITTEE MEETING OF NERPC

Date : 14/09/2018 (Friday)

Time : 10:00 hrs

Venue : "Hotel Nandan", Guwahati.

The List of Participants in the 148th OCC Meeting is attached at **Annexure – I**

Shri P.K. Mishra, Member Secretary, NERPC welcomed all the participants to the 148th OCC meeting. He expressed satisfaction about large number of participation and hoped that the members would continue to contribute to the proceedings in a constructive manner. He informed that the next 19th TCC/RPC meeting is scheduled to be held on 28.09.2018 and 29.09.2018 at Imphal under the aegis of MSPCL. Further, he intimated that the PDMS tender has been evaluated by the Technical Evaluation Committee and M/s PRDC has been found to be the sole qualified bidder amongst 3 other bidders. After financial bid evaluation, LOA would be subsequently done by September, 2018. He stated that in the Project Monitoring Group meeting of PSDF held on 13.09.2018 at Guwahati it was informed that due to insistence of MoP, unutilized funds sanctioned from PSDF by constituents on time would be de-sanctioned. Thus he requested all utilities especially DoP Ar. Pradesh to immediately take action for swifter utilization of funds.

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 147th MEETING OF OPERATION SUB-COMMITTEE OF NERPC.

The minutes of 147th meeting of Operation Sub-committee held on 10th August, 2018 at Guwahati were circulated vide letter No. NERPC/SE (O)/OCC/2016/4556-4591 dated 21st August, 2018.

The Sub-committee confirmed the minutes of 147th 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 148th OCC:

State	R&U scheme	ADMS	Capacitor Installation	SAMAST**
Arunachal Pradesh	10% fund requisition by Sep'18. Tender by Sep'18	Revised DPR submitted	-	DPR submitted for Techno-Economic Appraisal.
Nagaland	Pack-A: completion by Oct'18 Pack-B: Dec'18 Pack-C: Dec'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.	Revised DPR submitted	Appraisal Committee is yet to approve	DPR submitted for Techno-Economic Appraisal
Manipur	LOAs issued. Completion by 27/09/2019.	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	Substation auxiliary and diagnostics tools - Tendering in process. LOA by Sep'18.	Revised DPR submitted	-	DPR submitted for Techno-Economic Appraisal
Meghalaya	MePTCL- All LOAs awarded. Earthing Package Tendering in Progress. Balance items by Sep'18	Revised DPR submitted. Query referred to DISCOM	-	DPR submitted for Techno-Economic Appraisal

	MePGCL –Total award value ▪ 27.98 Cr. LOA placed ▪ 26.63 Cr.			

Deliberation of the sub-Committee:

Director(O&P), NERPC informed that in the Project Monitoring Group meeting of PSDF on 13.09.2018 the following were clarified:-

- That quantity variation within BoQ is allowed, however no new items is permissible under the same scheme.
- Funding for communication scheme is being kept at 50% because of the prospect of commercial leasing of OPGW. However if Digital PLCC/ VSAT is implemented 100% funding may be done.
- For Capacitor bank installation the NPC, CEA had suggested modifications in DPR i.r.o. Mizoram and Nagaland might be made and re-submitted.

Further, he informed that the progress of Tender formulation on SAMAST by various committees was reviewed on 13.09.18. Member Secretary, NERPC expressed satisfaction on the progress and hoped that all the SRS/Tenders would be finalized by 20.09.18. Sr. Manager, TSECL requested that for Low Voltage issue prevailing in Tripura System a Committee may be formed of Members from NERTS/ NERLDC/ NERPC and TSECL to collect data at ground level and study the system in totality. The forum agreed and requested NERPC to form the Committee alongwith a suitable third party to carry out the study.

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 148th OCC
63MVAR Reactor at Byrnihat to replace with 80MVAR Reactor	MePTCL	7th SCM MoM to be revised.
Repairing of R-ph bushing of 63MVAR L/R at Balipara for 400kV Balipara-Bongaigaon -II (*out since 17.02.18)*	NERTS	By Oct'18
Outage of 420kV 80MVAR L/R for 400kV Bongaigaon-NSLG-I at Bongaigaon - (out since	NERTS	By Mar'19*(Regional Spare will be utilized for restoration)*

04.07.18)		
132kV Dimapur - Imphal (*out since 25.07.18*)	NERTS	Expected restoration by Sep'18*(Note: Pace of restoration work severely affected due to landslide & blockade of roads)*
63 MVAR B/R-4 at 400kV Biswanath-Chariali(*out since 27.04.18*)	NERTS	Internal failure. By Nov'18

The Sub-Committee noted as above.

Action: All concerned utilities.

3. <u>Furnishing of various data for reliable grid operation</u>:

<table>
<tr><td>Data regarding</td><td>Status as of 148th OCC</td></tr>
<tr><td>DAS output for FRC calculation</td><td>Event Date: 30.07.18; Kopili, Palatana and Pare submitted the data.

Event Date: 29.08.18; Kopili and Palatana submitted the data.

NERLDC once again requested all generators to provide DAS data for FRC calculation within three days after communication received from NERLDC.</td></tr>
<tr><td>Operating Procedures</td><td>
<table>
<tr><th>Items</th><th>Data submitted by</th></tr>
<tr><td>OP of States</td><td>Submitted by AEGCL, MePTCL, TSECL, DoP Nagaland and P&E, Mizoram</td></tr>
<tr><td>OP of Transmission System</td><td>Not submitted by any constituents</td></tr>
<tr><td>OP of Generating Stations</td><td>Submitted by Doyang, Khandong and Kopili</td></tr>
<tr><td>OP of GIS</td><td>Not submitted by any constituents</td></tr>
</table>
</td></tr>
<tr><td>Data related to Power Map.</td><td>
<table>
<tr><th>Items</th><th>Data submitted by</th></tr>
<tr><td>Communication (PLCC/OPGW/ GPRSVSAT/ Satellite</td><td>NERTS, Meghalaya, Assam & Mizoram provided the data.</td></tr>
</table>
</td></tr>
<tr><td>Patrolling report(s) for T/L**.</td><td>Patrolling report and vegetation clearance self-certification to be immediately submitted for 132kV Balipara-Khupi, 132kV Dimapur-Kohima & 132kV Aizawl - Kumarghat</td></tr>
</table>

Submission of Capability Curve	NERLDC informed that capability curve is available with NERLDC for all CSGS. However, they are not in legible format. The forum requested NEEPCO, NTPC, NHPC and OTPC to submit capability curve in proper format.

The Sub-committee noted as above.

Action: All utilities as above.

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

Name of the Element	Action to be taken	Name of Utility	Status as of 148th OCC
132 kV Dimapur - Doyang 1 & 2 Lines	Installation of Numerical Relay at Doyang	NEEPCO	By Dec'18
AGTCCPP LFO	AVR Replacement	NEEPCO	By Nov'18
132kVPK Bari-Kumarghat	Installation of Line differential relay	NERTS	LOA By Nov'18
132kV AGTCCPP-Agartala D/C.	Line differential relay to be installed	NERTS	LOA By Nov'18
132kV PKBari	Installation of Numerical Relay under R&M (*high priority).* TSECL to divert NR to AGTCCPP.	TSECL	By 15.10.18
132kV Rokhia-79Tilla D/C	DPR to be installed	TSECL	By 15.10.18
400kV Silchar-Byrnihat and 400kV Silchar-Azara	Earthing through chemical treatment in the lightning prone areas with high tower footing resistance	NERTS	NETC Placed LOA for BE of 129 towers. Completion Sch.: Sept'18. Till now 7 completed
Repeated tripping of Doyang Machines	DPR to be installed for lines and units. CTs to be replaced.	NEEPCO	DPR lines-Dec'18, Units-Jun'19. CT replaced by Jun'19

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)	Jun 18 (actual)	Jun18 (LGBR)	Jul 18 (actual)	Jul18 (LGBR)
Ar. Pradesh	69.80	68.35	71.77	70.26	70.76	65.89	72.49	66.28
Assam	680.19	612.74	738.04	778.29	913.96	864.22	998.64	952.10
Manipur	64.99	64.76	68.18	67.46	67.74	64.86	72.38	65.08
Meghalaya	131.74	149.00	138.92	143.00	143.28	142.00	169.75	155.00
Mizoram	53.94	45.67	40.70	47.82	43.66	42.44	46.53	45.43
Nagaland	69.72	66.35	72.75	74.90	78.16	76.55	82.22	80.84
Tripura	155.05	99.18	101.52	98.38	121.77	123.16	144.97	123.51

Energy Availability:

Name of State	Apr18 (actual)	Apr18 (LGBR)	May18 (actual)	May18 (LGBR)	Jun18 (actual)	Jun18 (LGBR)	Jul18 (actual)	Jul18 (LGBR)
Ar. Pradesh	50.27	58.89	70.09	70.50	74.78	83.78	77.75	99.88
Assam	650.76	720.23	738.28	810.91	898.04	892.17	975.84	992.22
Manipur	70.23	76.30	95.07	86.53	101.66	102.23	111.82	129.88
Meghalaya	140.32	149.76	191.42	204.20	236.66	254.18	293.16	312.29
Mizoram	64.83	62.69	71.74	72.60	79.19	82.67	85.38	97.31
Nagaland	55.39	56.26	67.15	66.14	78.35	83.84	79.00	99.30
Tripura	276.86	267.05	252.31	281.99	255.49	242.47	294.08	308.19

Demand:

Name of State	Apr18 (actual)	Apr18 (LGBR)	May18 (actual)	May18 (LGBR)	Jun18 (actual)	Jun18 (LGBR)	Jul18 (actual)	Jul18 (LGBR)
AP	130.38	141	128.33	145	138.12	131.00	130.38	136.00
Assam	1532.51	1447.42	1625.51	1665.49	1782.35	1761.14	1862.54	1761.36
Manipur	192.89	170.68	179.01	169.41	179.48	163.70	174.16	162.83
Meghalaya	307.28	320.10	370.59	334.40	325.51	298.94	333.95	308.22
Mizoram	98.37	94.60	95.98	94.60	102.57	85.16	100.77	92.62
Nagaland	155.71	128.56	147.06	140.94	129.40	152.90	132.89	153.75
Tripura	304.80	299.20	275.65	282.80	280.66	307.24	298.12	322.71

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 AUGUST, 2018

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

NER PERFORMANCE DURING AUGUST, 2018

States	Energy Met (MU)		w.r.t. Jul,18 % inc (+) /dec (-)	Energy Reqr. (MU)		w.r.t. Jul,18 % inc (+) /dec (-)	% inc (+) /dec (-) of energy reqr vs met. In Aug,18
	Aug-18	Jul-18		Aug-18	Jul-18		
Ar. Pradesh	70.18	69.00	1.71	71.07	70.01	1.51	-1.25
Assam	1023.54	990.99	3.28	1059.85	1027.43	3.16	-3.43
Manipur	70.25	72.02	-2.46	71.13	73.09	-2.68	-1.24
Meghalaya	166.90	172.38	-3.18	166.90	172.38	-3.18	0.00
Mizoram	49.56	51.15	-3.11	50.20	51.98	-3.42	-1.27
Nagaland	73.96	71.17	3.92	82.30	79.51	3.51	-10.13
Tripura	144.63	146.94	-1.57	146.10	148.89	-1.87	-1.01
Region	**1599.02**	**1573.65**	**1.61**	**1647.55**	**1623.30**	**1.49**	**-2.95**

States	Demand Met (MW)		w.r.t. Jul,18 % inc (+) /dec (-)	Demand in (MW)		w.r.t. Jul,18 % inc (+) /dec (-)	% inc (+) /dec (-) of Demand vs met. In Aug,18
	Aug-18	Jul-18		Aug-18	Jul-18		
Ar. Pradesh	133	128	3.91	138	138	0.00	-3.62
Assam	1795	1776	1.07	1834	1863	-1.56	-2.13
Manipur	175	171	2.34	177	174	1.72	-1.13
Meghalaya	326	332	-1.81	325	334	-2.69	0.31
Mizoram	97	98	-1.02	99	101	-1.98	-2.02
Nagaland	133	126	5.56	134	133	0.75	-0.75
Tripura	287	288	-0.35	292	298	-2.01	-1.71
Region	**2795**	**2798**	-0.11	**2967**	**2899**	2.35	-5.80

REGIONAL GENERATION & INTER-REGIONAL EXCHANGE IN MU

Month---->	Jul-18	Jul-18
Total Generation in NER (Gross)	1767.095	1853.459
Total Central Sector Generation (Gross)	1358.337	1402.548
Total State Sector Generation (Gross)	408.758	450.911
Inter-Regional Energy Exchange		
(a) NER-ER	**8.58**	**3.24**
(b) ER-NER	**525.11**	**372.10**
(c)NER-NR	**505.16**	**468.53**
(d)NR-NER	**0.00**	**0.00**
© Net Import	-11.37	-99.67

AVERAGE FREQUENCY (Hz)

Month---->	Jul-18	Jul-18
	% of Time	% of Time
Below 49.9 Hz	8.92	10.25
Between 49.9 to 50.05 Hz	80.43	76.03
Above 50.05 Hz	10.64	13.01
Average	49.98	49.98
Maximum	50.22	50.24
Minimum	49.62	49.62

Deliberation of the sub-Committee:

NERLDC gave a presentation on the grid performance for the month of August'18 **(Annexure-B.2-a).** NERLDC also highlighted that Daily, Weekly and Monthly Voltage Deviation Report, Frequency Deviation Report and System Reliability Report for July'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. NERLDC highlighted the FRC absorption for various stations unit-wise **(Annexure B.2.a).** NERLDC also displayed Voltage vs MVAR plots for all the ISGS in NER. **(Annexure B.2.b)**

Name of generating station	Remarks	Remedial action(if any)
AGTCCPP	No evident absorption	Will be rectified after AVR replacement
Khandong	No evident absorption	To be checked by NEEPCO
Doyang	No evident absorption	To be checked by NEEPCO
Kopili	Conclusion not possible	MVAR DAS data to be provided by NEEPCO

The Sub-Committee noted as above.

I T E M S F O R D I S C U S S I O N

C. OLD I T E M S

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

During 147th OCC meeting, the status as informed by different beneficiaries is as follows:

SN	Items	Status as given in 147th OCC Meeting		Status as given in 148th OCC Meeting	
		Timeline for completion	**Furnishing of detail parameters**	**Timeline for completion**	**Furnishing of detail parameters**
a. New Elements					
1	400/220kV, 315 MVA ICT-1 of NTPC at Bongaigaon	By Oct-Nov'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	400 kV D/C Silchar - Melriat line of PGCIL	Work held up due to not allowing POWERGRID to carryout diversion of State Line by P&E Mizoram.	To be submitted to NERLDC.	Oct'18	To be submitted to NERLDC.
4	132kV Monarchak – Surjamaninagar D/C of TSECL	By Dec'18	To be submitted to NERLDC	By Dec'18	To be submitted to NERLDC
5	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. DG set - by Aug'18	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. DG set - by Aug'18	Not applicable.
6	400/220 kV 315 MVA ICT-II at Bongaigaon	Modification required in GIS Hall. Oct'2018	To be submitted to NERLDC.	Ready for Test charging from HV. Ready for Load flow by Nov'18.	Already submitted for HV side.
7	220/132 kV, 160MVA ICT-II at Balipara	ICT#II - despatch by Dec'18	To be submitted to NERLDC.	ICT#II - despatch by Dec'18	To be submitted to NERLDC.
8	220/132 kV, 1x160 MVA ICT		To be		To be

	with GIS Bay at Kopili	Dec'18	submitted to NERLDC.	Dec'18	submitted to NERLDC.
9	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.
10	400 kV Silchar – Misa D/C	2019**	To be submitted to NERLDC.	2019**	To be submitted to NERLDC.
11	33kV bay at 220kV Mariani(AS) S/Sn	Security Paid. Agreement made. Meter to be installed by ASEB.	Not applicable.	By Sep'18	Not applicable.
12	33kV bay for 132kV Badarpur(PG) S/Sn	Revised estimate by APDCL within Aug'18	Not applicable.	By Sep'18	Not applicable.
13	Dedicated 33kV feeder at Khliehriat Substation from Lumshnong.	RoW issues to be bilaterally resolved.	Not applicable.	CE could not be prepared in want of ROW Issue. MeECL to take up the matter.	Not applicable.
14	Construction of 132 kV Imphal (PG) - Yurembam III lines with high capacity conductor by MSPCL	RoW problem#. Tentative Completion: Sep'18	To be submitted to NERLDC.	RoW problem not resolved. Tentative Completion: Oct'18	To be submitted to NERLDC.
15	LILO of 132kV Aizawl-Jiribam at Tipaimukh by MSPCL	By Dec'18. Voice communication to be put in place ASAP.	Already submitted.	By Oct'18. Voice communication to be put in place ASAP.	Already submitted.
16	MW Vacation OPGW project	All nodes are reporting. Srikona-Silchar-Badarpur-Kolasib-Aizwal completed. DOCO 01.04.18. Rectification by Sept18.	Not applicable.	KEC Part: 236km out of 236 of CS,714km out of 714km of State sector completed. Total of 17links are made reported to RLDC & SLDC as per list attached.	Not applicable.

				Rectification one link Sma-Mari is going on. Data via links Panchgram-Srikona-Pailapul is stopped due to tower failure as One Tower(AEGCL link) collapsed between Panchgram-Srikona-Pailapul. These links were originally commissioned and Equipment SAT is already done with AEGCL. AEGCL is requested to issue TOC for the completed part earlier as part affected due to storm/tower failure may not be linked. Work suffered delay/ slow due to tough unfavorable natural conditions (recent monsoon Flood in south, Upper Assam, Lower Assam). Further works awarded to M/s Tendot viz. Ranganadi-Gohpur is under progress. Silchar –Srikona, Melriat-Aizawal is also completed. Nirjuli Ranaga is under halt due	

				to LILO part modification by DoP. Other Target-Dec18.	
17	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.	Completed	Not applicable.
18	NER FO Expansion/Add req of OPGW	Present Status: Out of the list as per 18th RPC: WIP: Silchar-Melriat, SMN-Palla, SM-79T, 79Tila-rc Nagar, Badarpur-Jiribam, Completed OPGW: Khandong-Haflong, Doyang-Dimapur, Doyang-Mokokchung (St) Mokokchung-Mariani, Mariani-PG-Kathalguri. Equip: Supplied/ Comm pending	Not applicable.	OPGW Part: Stringing Status: Central Sector: Part-1: 192.669/740Km (total 12 links) Part-2: 398/398km (5links) State Sector: Meghalaya: 0Km/63Km (total 04 links) Tripura: 200/316.484Km (total 12 links) Nagaland: 0/93Km (total 03 links) Manipur: 0/365Km (total 11links) Constraints: ROW at sites (e.g. Tripura & Nagaland-Assam border, Manipur-Assam border). Site/space readiness in areas like Kohima, Khandong, Kopili, Jadhima/New Kohima etc. Natural/weather constraints like road conditions/Flood etc. Work stopped by NETC lines with	Not applicable.

				consensus from NERPC for Silchar-Pallatana due to non-issue of PTW by OTPC due to grid constriants. Target: Dec18 to March19	
19	URTDSM project	Supply & Installation completed:13/14 location 18nos. PMUs in 4 locations integrated	Not applicable	Total Scope: 1no. CC SPC-NERLDC, 3nos. PDC(Assam, Meghalaya, AP(The same proposed to be shifted to Back up RLDC) 51 PMUs in 14 stations Status: Work in control centre 3PDC(including one SPDC) & 31PMUs are reporting(commissioning completed-40) out of 51nos. 4stations left. For NERLDC, SAT planned-4th week-Sept18, UPS pending), Control centre i.e. PDC Assam, Meghalaya completed. PDC of AP is proposed to be shifted to Back UP NERLDC as there is space constraint in AP SLDC. Further back up of SPDC,NERLDC	Not applicable

				is required keeping in view geographical conditions. Constraints: Difficult terrain / tough road condition / tough camping conditions	
b. Elements under breakdown / upgradation					
20	Up-gradation of 132 kV Lumshnong-Panchgram line	Revised DPR submitted to Techno-Economic Sub-group PSDF	Not applicable.	MePTCL to submit DPR for Techno Economic Appraisal after concurrence of AEGCL.	Not applicable.
21	Switchable line Reactors at 400kV Balipara & Bongaigoan Ckt # 1 & 2	Bongaigaon-Aug'18 Balipara - Aug'18	Not applicable	Completed. Minor works remaining. By Sep'18	Not applicable
22	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.
23	Re-conductoring of 132kV Umiam Stg-III bus	DPR prepared and submitted for approval	Not applicable.	Modified for upgradation of Umiam Stg#III bus. Admissible under PSDF. To be taken up in TCC/RPC	Not applicable.
24	Upgradation of ULDC FO node	Target completion : June 2018	Not applicable.	SDH equipment node replacement started (Siemens SDH by ECI in 17locations). 14 locs completed. Fibre not ready at Umtru(MEPTCL is to	Not applicable.

				provide). Natural constraints, non availability of fibers have delayed the project Target: Dec18.	
25	Upgradation of 132kV Silchar-Imphal to 400kV	By Sep'18. But may be delayed. MSPCL to confirm LILO at 400kV Thoubal.	To be submitted to NERLDC	By Oct'18. Scope as per 6th SCM.	To be submitted to NERLDC
26	Integration of existing bays with C264 RTU at RHEP by NEEPCO	Dec'18	Not applicable	By Jan'19	Not applicable
27	Replacement of CTs and installation of Bus Bar Protection at 220kV Misa	Under NERSS-VII. By Dec'18	Not applicable	Under NERSS-VII. By Dec'18	Not applicable

Deliberation of the sub-Committee:

**Director(O&P), NERPC informed the forum that NERPC has written to M/s RECTPCL for providing a list of all awarded TBCB projects in NER. After obtaining the same, NERPC would follow up with the respective companies for status.

The Sub-Committee noted as above.

Action: All state utilities/central utilities/NERPC.

ITEMS REG. SUBMISSION OF DATA/COMPLIANCE

C.1 Geospatial Energy Portal for NITI Aayog:

Latest status - MeECL, P&ED Mizoram, APDCL have submitted. Remaining utilities yet to submit.

Deliberation of the sub-Committee:

MSPDCL, DoP Nagaland yet to submit.

The Sub-Committee noted as above.

Action: MSPDCL/DoP Nagaland.

C.2. 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

In 147th OCCM, APGCL and MePGCL Director(O&P), NERPC requested remaining utilities to nominate nodal officer and also intimated that current database as available with CEA would be circulated to all generating utilities for verification.

Deliberation of the sub-Committee:

Director(O&P), NERPC requested all the remaining utilities to register in the portal and submit the names and contact details to pslfcea@yahoo.com with copy to NERPC. After detailed deliberation the forum decided to drop the agenda item.

The Sub-Committee noted as above.

Action: All remaining generating utilities.

C.3 Flexibility in generation and scheduling of thermal power station to reduce the cost of power to consumer:

The final scheme has been issued vide OM. dated 30.08.18. The same is attached at **Annexure-C.3.**

Deliberation of the sub-Committee:

Director(O&P), NERPC requested members to peruse the scheme and provide their valuable comments regarding its operationalization.

The Sub-Committee noted as above.

Action: OTPC/NTPC/NEEPCO/ NERLDC.

D. NEW ITEMS

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		24.67	719.2
Kopili-II	1			
Kopili	4		196.88	609.88
Ranganadi	2		Subject to inflow	
Doyang	2		30	322.65
Loktak	3		250	768.77
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 99th OCC meeting that shutdown will be availed only after approval is given by the OCC forum. It was also agreed that deferment/revision of outages elements other than already approved in OCC will be henceforth put/displayed in the website of NERPC (**under Operational Activities/OCC Approved shutdown**) as per CERC regulations/ CEA guidelines etc for ensuring smooth & secure grid operation.

Furnishing request of shut down of the element, which was approved by NERPC, by Indenting Agency (ISTS licensees/STUs/Generating Companies) to NERLDC: 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 10th of the month, the shutdown availing agency would reconfirm to NERLDC on 7th 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 deferred by NERLDC	Total S/D availed on D-3 basis	Total S/D not applied on D-3 basis
100	83	10	7	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 July'18 are as below:

Transmission Licensee	Total Delay	Avg. Delay	Max. Delay
POWERGRID	48.03	01:20	12:35
NETC	01:15	01:15	01:15
ENICL	04:16	02:08	02:38

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 September, 2018- October, 2018 and the same has already been uploaded in website of NERPC.

D.3 Estimated Transmission Availability Certificate (TAC) for the month of May, 2018 to July,2018:

NETC and POWERGRID have submitted the outage data for the month of May, 2018 - July, 2018. So the attributability of outage of the said elements may please be finalized.

Deliberation in the Meeting:

The Sub-Committee ratified the attributability from May, 2018 to July,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 04.09.18. All SLDCs are requested to assess the Total Transfer Capability (TTC), Transmission Reliability Margin (TRM) and Available Transfer Capability (ATC) for the month of September'18 using these cases, and submit the study cases and results to NERLDC by 20.09.18.

NERLDC has assessed the state control area wise, state subsystem wise and group of control-area wise TTCs for NER Grid. The study results will be presented during the meeting. SLDCs are requested to check the TTC of their control areas as computed by NERLDC and give comments, if any, by 20.09.18.

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 122nd OCC meeting of NERPC, all SLDCs of NER may host the assessed TTC / ATC / TRM figures on their websites for information dissemination.

Deliberation in the meeting

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 October'18:

States	Off Peak	Peak
Arunachal	214	211
Assam	1693	1700
Manipur	256	237
Meghalaya	160	160
Mizoram	116	116
Nagaland	166	164
Tripura (including Bangladesh)	97	73

NERLDC requested all the utilities to update the PSSE version.

The Sub-Committee noted as above.
Action: All SLDCs/STUs.

D.5. <u>SPS mock testing & existing SPS scheme related:</u>

As per previous discussion it was decided that:

- Separate asset would be created for SPS at Palatana and Silchar.
- OTPC would complete procurement on behalf of all beneficiaries. NERTS to provide technical support.
- 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 would be tentatively on 01.09.2018.

The Committee visit and inspection/testing was successfully completed on 01.09.2018. The recommendations of the committee are as follows:

- SPS-3 may be turned on at Silchar end only and kept on monitoring. The period for monitoring may be decided by the forum.
- SPS-2 will work with breaker opening contacts at Palatana.
- DT send(on separate channel) to Silchar for 86LO operation at Byrnihat/Azara for 400kV Byrnihar-Silchar and 400kV Azara-Byrnihat respectively to be implemented. These would be used as part of SPS-3 logic at Silchar.

Deliberation in the meeting

Director(O&P), NERPC informed that SPS-3 has been turned on at Silchar and kept in Monitoring mode. He requested the forum to decide the duration of monitoring and the date when it is to be taken into service. After detailed deliberation the forum decided that SPS-3 is to be put in service on 01.10.2018. Further, the forum requested AEGCL and MePTCL to implement the DT send to Silchar for 86LO operation as stated above at the earliest.

The Sub-Committee noted as above.

Action: OTPC/NERTS/MePTCL/AEGCL.

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

As per discussion in previous meetings, following were resolved:

1. CDAC would commission the project tentatively in three months' time. During this period, CDAC would install the "TARA" device at all identified metering locations (one device for each meter to be connected with meter through RS-485) to enable transmittal of data to SLDCs. Final updated meter list with 79 meters attached at **Annexure-D.6.**
2. As NDA signing and sharing of protocol has been done with L&T, Elster/Secure make meters would be replaced by L&T make as per attached list.
3. Respective States would purchase SIMs to be inserted in the device as per Annexure (Total 79 SIMs). SIMs would be purchased as per GPRS network availability in respective locations.
4. Data from all 79 meters would be preferably sent to NERLDC/NERPC in tabular format for each State. CDAC to co-ordinate with NERLDC/NERPC for obtaining public IP. SLDCs would log in to NERLDC/NERPC server and view their respective schedule vs actual data for each time block.
5. Pilot project for the same would be done by CDAC for the two SEMs at Azara within next one month and data transmittal would be verified by Assam SLDC and NERLDC.
6. CDAC confirmed that it would take about 5-7 minutes for transmittal of whole set of data from site locations and hence SLDCs would be able to view previous time block data in their terminal.
7. The project would be under warranty for one year and AMC would be done after that.
8. Spare devices would be used for future locations

Deliberation in the meeting

Director(O&P), NERPC informed that Public IP has been procured and intimated by NERLDC and pilot project at Azara is under implementation.

The Sub-Committee noted as above.

Action: CDAC.

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

Status as updated in 147th OCCM: LOA has been placed and supply would be done by Aug'18.

Deliberation in the meeting

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

The Sub-Committee noted as above.

Action: NERTS

D.8. Ensuring proper functioning of Under Frequency Relays(UFR) & df/dt Relays:

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

Discussions as per previous meetings:-

- Procedure for testing finalized
- First phase of UFR inspection and testing would be carried out by August'18 for Mawphlang, Khliehriat and Nongstoin.

Deliberation in the meeting

Director(O&P), NERPC informed that inspection for Mawphlang was carried out successfully on 28.08.2018. However inspection for Khliehriat and Nongstoin could not be carried out due to defective relay replacement. He informed that UFR inspection for Baghjap, Sankardevnagar and Sipajhar under Assam would be tentatively done in the month of September,2018.

The Sub-Committee noted as above.

Action: NERPC/NERTS/NERLDC/AEGCL.

D.9 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 144th 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.

In 147th OCCM NERTS informed the following:-

- HVDC Biswanath Chariali: Under ABB scope. Would be resolved by 15.08.2018.
- Dimapur: Fire incident. By Nov'18.
- Bongaigaon: Within 7 days database updation required.

For RHEP RTU integration works complete by Dec'18.

Deliberation in the meeting

NERTS informed the following:

HVDC Biswanath Chariali : Under ABB scope. Would be resolved by 15.08.2018.

Present status/target :

ABB / Site intimated that all signals were integrated as per project approved list. The same was also jointly checked with RLDC end during commissioning. Thus,

additionally SOE and other signals apart from approved list needs approval of competent authority.

POWERGRID requested NERLDC for forwarding copy of any communication vide LD & C / HVDC CC was intimated to implement the list as submitted now for further approval / implementation. In this reg, email from NERTS was given to RLDC on 14.8.18

Dimapur : Fire incident. By Nov'18.—present status/target: Dec'18

Bongaigaon : Within 7 days database updation required - present status/target: Completed

For RHEP RTU integration works complete by Dec'18.

It was suggested by MS, NERPC that a special meeting regarding all communication issues will be taken up by NERPC in the next week

The Sub-Committee noted as above.

Action: NERTS/NERLDC/NEEPCO.

D.10 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 145th 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.

In 146th OCCM 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 – Sihhmui (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 – Sihhmui 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 – Sihhmui 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 – Sihhmui (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 – Sihhmui (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.

In 147th OCCM DGM (AM), NERTS informed that the draft agreement is lying with SE (Trans), P&ED Mizoram. He requested that signing of the same be expedited. Director (O&P), NERPC requested Mizoram to expedite the matter to facilitate POWERGRID to complete the job soon and also informed NERTS to co-ordinate with Sh. Benjamin Tlumtea Sr.EE (SLDC), Mizoram for early resolve of the issue.

Deliberation in the meeting

AGM, NERTS informed that the agreement has been signed with P&ED Mizoram and the matter has been resolved. The forum thanked P&ED Mizoram in earnest and noted that SE(Projects), Circle-I P&ED Mizoram is the nodal officer for all future purposes. After detailed deliberation the forum decided to drop the agenda item.

The Sub-Committee noted as above.

D.11 Surplus in NER and backing down of hydro ISGS:

In 145th 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 around100 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.

In 146th OCCM 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 4th 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.

In 147th OCCM NERLDC requested NEEPCO to reduce generation when instruction is given (in case of spillage). NEEPCO concurred. SE, SLDC, MeECL informed that the schedule of Ranganadi is suddenly changed resulting in deviation of almost 35-40MW for Meghalaya. NEEPCO informed that 7 hrs inflow can be predicted, thus revising DC from now onwards in every 6hrs. The forum requested NEEPCO to take up the matter of accurate weather forecasting and give rational DC from 00:00hrs of 13.08.2018.

Deliberation in the meeting

NERLDC informed that there is reluctance from NEEPCO to back down AGBPP generation in real time. The forum requested NEEPCO to take necessary action in this regard. After detailed deliberation, the forum decided to drop the agenda item.

The Sub-Committee noted as above.

Action: NEEPCO, NERLDC.

D.12. Review of Automatic Under Frequency Load Shedding (AUFLS) relay settings in Indian Power System

In the 7th meeting of NPC on 8th 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 AULFS 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.*

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 state-wise quantum(s) are given below:

Present UFR scheme	**Total(MW)**	**Stg-I-49.2Hz 100 MW (all figs in MW)**	**Stg-II - 49.0Hz 100 MW (all figs in MW)**	**Stg-III- 48.8Hz 100 MW (all figs in MW)**	**Stg-IV - 48.6Hz 100 MW (all figs in MW)**
AP	20	5	5	5	5
Assam	220	55	55	55	55
Manipur	20	5	5	5	5
Meghalaya	60	15	15	15	15
Mizoram	20	5	5	5	5
Nagaland	20	5	5	5	5
Tripura	40	10	10	10	10
Total	400	100	100	100	100

Proposed UFR scheme	**Total(MW)**	**Stg-I-49.4hz 100 MW (all figs in MW)**	**Stg-II - 49.2Hz 100 MW (all figs in MW)**	**Stg-III- 49.0Hz 100 MW (all figs in MW)**	**Stg-IV-48.8Hz 100 MW (all figs in MW)**
AP	34	10	10	10	10
Assam	374	90	90	90	90
Manipur	34	10	10	10	10
Meghalaya	102	25	25	25	25
Mizoram	34	5	5	5	5
Nagaland	34	10	10	10	10
Tripura	68	20	20	20	20
Total	680	170	170	170	170

- As per calculation the load shed for Ar. Pradesh, Manipur and Nagaland are 8.5MW rounded off to 10MW.
- For Mizoram since the demand met is less than 100MW no additional shedding is proposed.

Deliberation in the meeting

The forum unanimously endorsed the additional quantum proposed as part of UFR shedding and the raise in frequency stages by 0.2Hz considering the improved frequency profile of NER grid and referred to TCC/RPC.

The Sub-Committee noted as above.

Action: NERPC.

D.13. Repeated trippings due to vegetation:

In the deliberations of the Sub-group it has been observed that a number of lines are tripping due to vegetation overgrowth i.e. transient tripping almost continuously throughout the year.

Month	Name of line/ No. of trippings		
	132kV Balipara-Khupi	132kV Dimapur-Kohima	132kV Aizawl-Kumarghat
Jan'18	2	1	1
Feb'18	1	1	2
Mar'18	3	4	1
Apr'18	4	1	2
May'18	0	0	4
June'18	4	6	3
July'18	6	4	4

For this patrolling reports and self-certification of vegetation clearance is to be submitted by the concerned utilities.

Also the following lines have been observed to have tripped frequently on transient faults due to vegetation in the months of May-Jul'18:

- 400kV Balipara- Biswanath Chariali -II
- 400kV Silchar - Azara
- 400kV Balipara - Bongaigaon-III

NERTS may please certify the vegetation clearance for the above critical corridors.

Till date no patrolling report or vegetation clearance certificate has been received.

Deliberation in the meeting

DoP Nagaland informed the following w.r.t. 132kV Dimapur - Kohima:

1. There has been numerous tripping of 132kV Dimapur - Kohima due to insulator failure.
2. Presently mass replacement with polymer insulators is being carried out in the line.
3. Due to flooding maintenance has been thwarted, thus resulting in numerous trippings.

NEEPCO informed the following w.r.t. 132kV Balipara- Khupi:

1. DoP Ar.Pradesh has to allow for shutdown of the said line since maintenance activities cannot be carried out without sufficient shutdown period.

2. Tee- portion should be maintained properly by DoP Ar.Pradesh.

3. Due to tee-connection exact location of fault cannot be ascertained. Thus a proper joint survey needs to be carried out with members from DoP Ar.Pradesh, NERTS and NEEPCO.

NERTS submitted the following:

Vegetation clearance is carried out by POWERGRID routinely for all transmission lines. However, the following constraints are encountered in vegetation management of transmission lines, which are beyond the control of POWERGRID:

a) **Acute Right of Way constraints/obstructions** from local inhabitants at various sections of the following lines is faced- which has been making it extremely difficult to maintain required vegetation clearances. In most of the cases, POWERGRID has been compelled to resort to security assistance from the Administration for carrying out routine vegetation clearing. However, the nature of obstruction is very strong & as on date, it has not been possible maintain required vegetation clearance in these lines, despite best effort by POWERGRID. POWERGRID has taken up the matter with Administration & also at various forums.

800KV HVDC BNC-Agra TL (Udalguri, Baksa Nalbari, Kokrajhar, Chirang) . 400KV D/C Balipara-Bongaigaon (quad) line (Udalguri, Darrang, Baksa, Nalbari, Kokrajhar) . 400KV D/C Silchar-PK Bari TL (charged at 132KV) in Hailakandi & Karimganj areas. . 132KV Badarpur-Kumarghat TL (Hailakandi, Karimganj) . 132KV Badarpur-Kolasib(Hailakandi) . 400KV Balipara-Biswanath Chariali ((Sonitpur)	

b) Vegetation from uphill falling on lines drawn through hilly terrain:

Although vegetation clearance in Right of Way is maintained for the following lines, trees/ bushes from uphill side are often found to fall on the lines(particularly during rainy & stormy season encompassing the period from March to September) leading to transient faults & also permanent faults at times- which is beyond the control of POWERGRID. Here, it may also be noted that of these lines mostly passes through Forest areas & relevant laws stipulates clearing/ cutting down of only a limited stretch in in the Right of Way of transmission line drawn through Forest.

1.0 132KV Aizawl-Kumarghat TL
2.0 132KV Aizawl-Jiribam TL
3.0 132KV Aizawl-Kolasib TL
4.0 132KV Dimapur-Imphal TL
5.0 132KV Dimapur-Doyang TL

Additionally, breakdown of road communication/ transportation to tower locations of these lines during the Monsoons further leads to extreme difficulty in smooth routine maintenance of these lines.




(L) A view of Aizawl-Kumarghat TL & (R) Road conditions during Monsoons.

Director(O&P), NERPC stated that the acute RoW problems leading to non-maintenance activities w.r.t. various lines would be taken up in the next TCC/RPC meeting.

The Sub-Committee noted as above.

Action: NEEPCO, NERTS, DoP Nagaland.

D.14. <u>VSAT for power system communications in NER:</u>

As per discussion in 10th NETeST meeting it was decided that VSAT for remote station connectivity would be explored. NERTS was requested to prepare DPR and present in 147th OCC.

In 147th OCCM DGM(AM), NERTS informed that 2 Service Providers have been approached, however no quotation has been received till date. The forum noted that since the scheme deems sufficient financial involvement, RPC approval is required. NERTS suggested that a Committee may be formed for Comprehensive project. After detailed deliberation it was decided that since at present no list of stations are available which require VSAT communication, the stations of Roing, Tezu and Namsai would be given priority. NERTS was requested to prepare the DPR for VSAT communication i.r.o. above three station at the earliest.

<u>Deliberation in the meeting</u>

NERTS informed that they have received quotation from AIRTEL as per which financial implication will be around Rs. 60368800.00 in which recurring cost is Rs. 59944000.00 per annum. The recovery mechanism may be deliberated before placing the agenda to 19th TCC / NERPC Meeting.

Meanwhile POWERGRID is exploring High Bandwith Lease Line connectivity (MPLS from Airtel).

GM, NERLDC opined that VSAT option for entire NER should be explored in line with the scheme operational under KPTCL

The Sub-Committee noted as above.

Action: NERTS/NERLDC.

D.15. <u>Connectivity of 132kV Samaguri from 132kV Balipara:</u>

It is proposed to charge 132kv Balipara- Sonabil line through 220kv Sonabil Samaguri line and further it will be connected to Khaloigaon line at 220kv samaguri Substation

as per attached diagram. This arrangement is proposed to mitigate the power problem partially at Samaguri Substation.

In 147th OCCM AEGCL informed that due to outage of 220kV Sonabil-Samaguri D/C the 132kV Balipara - Khaligaon line could not be put through as proposed by them. CGM, APDCL informed that present problem has arisen due to failure of 220/132kV 160MVA ICT at Samaguri supplied under NERPSIP. AEGCL further intimated that no timeline can be given at present for the repair/replacement. It was requested that the regional spare 220/132kV 160MVA ICT at Balipara be temporarily handed over to AEGCL so that power supply can be restored at Khaligaon.

DGM(AM), NERTS stated that the regional spares are procured against central sector transmission systems of NER and the particular 160MVA ICT was procured as spare against Kopili and Balipara Station. He also stated that, even if with due approval of all concerned, if the ICT is spared to Assam then, in the event of breakdown of ICT at Kopili or Balipara the deemed availability should be given to POWERGRID.

SE, SLDC, DoP Ar. Pradesh opined that regional spare should be used for regional benefit and if the present situation warrants then ICT may be given temporarily.

SE, SLDC, MeECL opined that the spare ICT is against critical ICTs at Misa and Balipara. In event of outage of the latter the entire region would be affected. So, the handover may be put on hold.

Sr. Manager, TSECL also concurred with the views of MeECL and requested that the spare ICT be kept reserved to serve its original purpose. Further, during deliberation Assam could not give specific timeline for replenishment.

Considering all above aspects, the forum has decided not to provide the spare ICT to Assam.

DGM (AM) NERTS suggested that some critical spare Transformers & Reactor may be procured for constituent states by NERPC obtaining fund from PSDF as repairing / new procurement has lead time not less than 18 months.

Director(O&P) requested all the state utilities to draw up a list of critical assets so that proposal may be put up in next TCC/RPC meeting. For operationalisation of 132kV Balipara - Khaligaon AEGCL was requested to provide details of SEM and certify protection system at Balipara ASAP.

Deliberation in the meeting

AGM, SLDC, Assam informed that 132kV Balipara - Khaligaon has been connected with average power flow of 35MW w.e.f. 31.08.2018 (12:10hrs). He also informed that all formalities such as SEM installation and communication has been put in place. Also protection settings has been handed over to NERLDC. The forum decided to drop the agenda item.

The Sub-Committee noted as above.

Action: AEGCL/all state transmission utilities.

D.16. Status of tests related to +/- 800 kV HVDC Agra - Alipurduar - Biswanath Chariali link

POWERGRID is requested to intimate the status of the following tests related to +/- 800 kV HVDC Agra - Alipurduar - Biswanath Chariali link:

a. Emergency Power Control (EPC)
b. Power Oscillation Damping (POD)
c. Frequency controller.

In 147th OCCM, NERTS informed that the tests would be carried out by M/s ABB tentatively by Sep-Oct'18.

Deliberation in the meeting

NERTS informed that the tests are still underway and will be completed by Oct'18. The forum decided to drop the agenda item.

The Sub-Committee noted as above.

D.17. Optimal Utilization of Water for Loktak HEP, NHPC

It has been observed that Loktak HEP, NHPC is having a reservoir facility which can store water with an FRL of 768.5 meters and MDDL of 766.2 meters. NERLDC is of the view that since it is an reservoir based hydel power station, optimal utilization of water has to be done since during the last few years North East Region is having less amount of rainfall.

In 147th OCCM NHPC representative stated that optimal utilization of water is being done and detailed plan has already been discussed in 146th OCCM. NHPC also informed that an official information will be given regarding FRL issues.

Deliberation in the meeting

NERLDC informed that the FRL has been submitted by NHPC. After detailed deliberation the forum decided to drop the agenda item.

The Sub-Committee noted as above.

D.18 Huge underdrawal by Assam due to lack of partial requisition on 08.08.18

On 8th Aug'18 there was huge underdrawal by Assam from 00 hrs to 0815 hrs to the tune of 300 MW due to lack of partial requisition from SLDC Assam inspite of RLDCs request for partial requisition. Assam has to absorbed huge financial loss . This is not an isolated incident with Assam and it is happening with all the constituents. So smart decision making and corrective action by Grid Managers is very much essential.

In 147th OCCM NERLDC highlighted the mismanagement which resulted in huge under-drawal by Assam. DGM, SLDC, AEGCL informed that the matter is under investigation and the detailed cause would be intimated to the forum

Deliberation in the meeting

AGM, SLDC, Assam informed that a detailed report has been furnished to NERLDC in this regard. After detailed deliberation the forum decided to drop the agenda item.

The Sub-Committee noted as above.

D.19. Procurement of spare Transformer and Reactors for States:

In 147th OCCM it was decided that some critical spare Transformers & Reactor may be procured for constituent states by NERPC obtaining fund from PSDF as repairing / new procurement has lead time not less than 18 months.

Director (O&P) requested all the state utilities to draw up a list of critical assets.

Deliberation in the meeting

Director (O&P), NERPC informed as per discussion in the PSDF meeting at Guwahati on 13.09.2018 it was informed by NPC that:

- Spare transformers/reactors would be provided from PSDF only against ISTS assets.
- In case any state wants any asset from Regional spare same may be provided (on a chargeable basis) after all necessary formalities are completed.
- In case any ISTS asset owned by any STU does not have regional spare same may be procured from PSDF.

The forum requested all the STUs to comply likewise

The Sub-Committee noted as above.

Action: all STUs.

D.20. Issues pertaining to Automatic Generation Control(AGC):

Primary, secondary and tertiary generation reserves are required for frequency control andensuring reliable operation of the grid, particularly under high Renewable Energy (RE) penetration. Primary control has been existing in the Indian Electricity Grid Code (IEGC) but its enforcement has been an issue that has been brought several times before the CERC.

Secondary control had been absent in the system so far while tertiary frequency control was introduced only in April 2016 through the Reserves Regulation Ancillary Services or RRAS Regulations of CERC. The following issues become important when one looks the entire spectrum of frequency control.

1. Ensuring accurate load forecasting and Renewable Energy (RE) forecasting.

This is the first step towards reliability as generating units need to get committed based on these forecasts. Starting from DISCOM level, the forecasts need to be aggregated for the state at SLDCs level, at RLDCs for the regional level and at NLDC for the AU India level

2. Proper scheduling by each state including indication of reserves

After the above forecast of load and RE generation, the scheduling of conventional generation resources by the states assumes importance. Here, apart from scheduling, the states also need to indicate the amount of hot spinning reserves it is holding. The reserves could be held either within the state or at the 15G5 where the state has a share but it should be replenished whenever there is a contingency such as a generating unit tripping within the state. The share of the states in the ISGS is also a form of tertiary reserves as the state reschedules the generation from these ISGS to re-balance the supply-demand within a time frame of 4 time blocks.

Unless such a mechanism is in place, the secondary control would not work as all the reserves would get depleted quickly. This would be evident from the figure below which shows the Declared Capability (DC) of 15G5, DC on bar and the schedules for Dec 2017.

3. Gate Closure: IEGC provides for schedule revisions within 4 time blocks and presently such rescheduling requests keep pouring in continuously in one or the other stations by one of the stakeholders (beneficiary or the generating stations). The generating stations are also changing the Declared Capability as and when required.

All this is leading to a situation where the accurate assessment of available reserves by the real time shift operator is just becoming an impossible task. This has particularly been observed in the RRAS despatch where as compared to the UP or DOWN instruction given by NLDC and much lower quantum gets actually implemented. Thus, parallel windows open all the time for rescheduling is leading to this situation.

Internationally, this situation is addressed by the implementation of a "Gate Closure" mechanism where all scheduling changes by stakeholders are barred say about 60minutes to 30 minutes ahead of the actual time of despatch. It is in this window that the real time shift operator evaluates the system conditions and despatches the firm reserves available at his disposal for balancing the system. Such a "Gate Closure" mechanism is urgently needed in India and the RPC Forum may deliberate the mechanism for implementation of gate closure.

4. Evaluate Area Control Error (ACE) of each control area.

Bias maybe taken as equal to Frequency Response Characteristics (FRC) of the state in past ten events. For ACE, high quality measurement of line flows and frequency at 10 seconds or better periodicity at LDCs is a must. Further seamless transfer of schedule data from off-line systems to SCADA must be ensured. RLDCs are already bringing forth the non-availability of real time data in the RPC forums and this needs to be addressed promptly. ACE, though being used for AGC, is still to find a mention/recognition in the Grid Code and feedback may be given to CERC in this regard.

5. The SLDCs must also monitor the primary response from the generating units within the state and report to the respective SERCs as directed by CERC vide its order dated 31st July 2017 in petition no 84/MP/2015. The primary droop characteristics of all stations also need to be monitored,

6. For AGC high quality measurements are needed for inter-regional tie lines and power plants under AGC. As stated above, periodic monitoring of the data quality needs to be done at the RPC forums and chronic problems of non-availability of data addressed promptly so that real time operation is smooth.

7. Fibre optic communication from Regional Entity power plant to nearest CTU node and there on to RLDCs/NLDC is a must and could be closely monitored through the RPC forums. This is required irrespective of whether we have a regulated system of secondary reserves procurement or a market based one.

Deliberation in the meeting

Director(O&P), NERPC informed that NPC would give a presentation on the above subject matter in the next TCC/ RPC meeting. He requested all the members to kindly peruse through above salient points.

The Sub-Committee noted as above.

Action: all utilities.

D.21. Maintenance of POWERGRID bays at Khandong SY:

The Khandong 132KV bays PCC is doing by NEEPCO except two Power grid bays i.e. Kopili-2 and Khleriat-2. The jungle cleaning AMC will be discontinued. So, Power grid is requested to PCC their both bays also else vegetation growth will be there.

Deliberation in the meeting

After detailed deliberation, it was decided that the matter would be resolved bilaterally by NEEPCO and NERTS. The forum decided to drop the agenda item.

The Sub-Committee noted as above.

Action: NEEPCO, NERTS.

D.22. Verification of Transmission availability certificate

In the 141st PCC meeting, 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 NERTS/NETC would provide the relevant documents during verification process itself and no plea would be honored after that.

It is observed that few outages were missing in the outage report submitted by Transmission Licensees in the last few months. No. of outages missing in the outage report is listed below:

Utility	Apr'18	May'18	Jun'18	Jul'18
POWERGRID	21	15	24	12
NETC	0	1	0	0

Details are attached as **Annexure-D.22.**

Transmission utilities are requested to include outages of all the elements owned by them in the monthly outage report.

It is also requested to submit element-wise cumulative tripping details attributable to the licensees for the current financial year (2018-19) on monthly basis along with the outage report as decided in the 143rd OCC meeting.

Deliberation in the meeting

NERLDC highlighted the issue that it has been observed that few outages were missing in the outage report submitted by Transmission Licensees in the last few months. Details attached in Annexure-D.22. Transmission utilities were requested to include outages of all the elements owned by them in the monthly outage report. It was also requested to submit element-wise cumulative tripping details attributable to the licensees for the current financial year (2018-19) on monthly basis along with the outage report as decided in the 143rd OCC meeting.

DGM(AM), NERTS stated that reconciliation of number of outages is a genuine issue and the matter has been accorded highest importance. Further he informed that transient outages pertaining to transmission lines for which bays at either end are not owned by POWERGRID but owned by other utilities viz. Ranganadi-Pare, Pare-Lekhi, Khandong-Kopili etc., information for the same is often not available at POWERGRID end - leading to their non-inclusion in the outage list during submission. Hence, to streamline the process of outage compilation & its verification, henceforth daily outage report of NERLDC recently being furnished NERTS will be considered for inclusion in monthly outage data.

The forum decided to drop the agenda item.

The Sub-Committee noted as above.

Action: NERLDC, NERTS.

D.23. Activation of SPS-3 at Palatana

Committee for inspection and testing of SPS-3 at Silchar (PG) visited Silchar (PG) on 1st Sep'18 and committee recommended to activate SPS-3 at Silchar (PG) for monitoring purpose. SPS-3 at Silchar (PG) was activated w.e.f 13:19 Hrs on 5th Sep'18 vide code 3373.

It is requested to activate the SPS-3 at Palatana.

Deliberation in the meeting

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

The Sub-Committee noted as above.

D.24. WBES implementation in NER:

Web Based Energy Scheduling process has been implemented wef 1st September'18 in North Eastern Region. With this, scheduling process is automated. This is also helping NERLDC to prepare near error free scheduling.

NERLDC would like to thank all SLDCs and ISGS for the support & co-operation in implementing the WBES process smoothly in NER without any major problems.

Deliberation in the meeting

GM, NERLDC thanked all the members for the enthusiastic participation in the WBES workshop and the smooth rollout of WBES in NER.

The Sub-Committee noted as above.

D.25. Requirement of high speed Internet facility with reliability at ISGS Stations.

WBES has been implemented in NER wef 1st September 2018 and Web based Reporting System will also be implemented shortly in NER. With the implementation above software, the availability of high speed Internet facility is again an issue with most of the constituents, ISGS/ SLDCs mainly NEEPCO/ OTPC/ NHPC Stations as intimated by the constituents during the WBES implementation Training Programme held at NERLDC, Shillong on 29th August'18. All SLDCs and ISGS stations are requested to plan for having reliable and high-speed internet facilities.

Deliberation in the meeting

GM, NERLDC informed that wherever fibre is available POWERTEL net can be availed. In case of non-availability leased line connectivity of 50Mbps may be taken considering the future bandwidth requirement. SLDC Manipur informed that presently 10Mbps connectivity is there. Other SLDCs informed that though connectivity is present upgradation is required. Since the matter requires high recurring financial involvement the forum referred the matter to the next TCC/RPC meeting for resolution.

The Sub-Committee noted as above.

Action: NERPC.

D.26. DIMAPUR_PG Voice communication and telemetry out since Feb'18.

All-important lines / Transformer data of DIMAP_PG station are wrong. In view of this problem, NAGALAND real-time drawal/ deviation data is not showing correct

figures thereby mis-leading the Shift Engineers. POWERGRID is requested to restore all lines and Transformer data along-with CB status at the earliest.

Deliberation in the meeting

DGM(AM), NERTS informed that Dimapur substation phone is working OK since March'18 (VOIP number 23640213). The same was restored along with power system restoration. Under urgency in March18, NERTS had collected one telephone from SLDC end and same was later replenished. For data, he informed that the same would be corrected by Nov'18.

The Sub-Committee noted as above.

Action: NERTS.

D.27. Synchronization problem & abnormal operational delay at Nirjuli Sub-station:

As reported, NIRJULI S/S is remotely controlled station. On 11.07.18, 1030 hrs NERLDC had requested NIRJULI S/S (through RTAMC) to synchronise power but they could not do the synchronisation.

Also, on 12.07.18 at 1425 hrs NERLDC requested NIRJULI S/S to open GOHPUR line as per system requirement but they failed to do this within 30 mins and power failed in ITANAGAR.

POWERGRID is requested to provide the S/S lists where synchronization facility is available along with remote controlled Stations.

Deliberation in the meeting

NERLDC highlighted the issues of synchronization problem at Nirjuli substation on 11.07.18 and 12.07.18.

DGM(AM), NERTS informed that on both the occasions breaker was in local mode after maintenance activities, hence even though remote command was given same was futile. The issue has since been rectified.

Following 14 Nos Sub Stations are presently being remotely operated from RTAMC, Shillong.

Sl	Name of Sub station	Sl	Name of Sub station	Sl	Name of Sub station
1	400/220 kV Bongaigaon	6	220 kV Mariani	11	132 kV Kumarghat
2	400/220 kV Misa	7	132 kV Jiribam	12	132/33 kV Nirjuli
3	400/220kV Balipara	8	132 kV Aizawl	13	132 kV Haflong
4	400/132 Kv Silchar	9	132 kV Badarpur	14	132/33 kV Imphal
5	220/132 kV Salakati	10	132 kV Khliehriat		

Synchronisation and dead line charging of all the lines emanating from the above sub stations can be done from RTAMC. If RTAMC fails to synchronise or charge on dead line condition, some element remotely it will be because of some technical snag which will be immediately attended by maintenance staff at the substation.

After detailed deliberation the forum decided to drop the agenda item.

The Sub-Committee noted as above.

D.28. Automation of Reporting System

NERLDC is preparing various daily reports by manually entering data in Microsoft Excel sheet. As NERLDC is in the process of migrating to a Web based software shortly for preparation of various reports using this software so that Generators/ States can upload their files directly into the web based software instead of sending them via email.

In view of the above, it is therefore requested to adhere to the following format for the respective ISGS/ SLDCs:

1. State Files Names—

a. ASSAM-DD-MM-YYYY

b. MEGHALAYA-DD-MM-YYYY (Please start your data table from Row 1 instead of row 2)

c. Tripura-DD-MM-YYYY (Please keep the sheet name as “Sheet1”)

2. Generation File Names-

a. Ranganadi-DD-MM-YYYY (Please DO NOT put any text in water level cell)

b. AGTCCPP-DD-MM-YYYY

c. DHEP-DD-MM-YYYY

d. LOKTAK-DD-MM-YYYY (In O and P Columns please insert the hourly data and energy MU of 132 kV Loktak-Rengpang and 132 kV Loktak- Ningthoukong lines respectively)

e. Palatana-DD-MM-YYYY

f. AGBPP-DD-MM-YYYY

g. Khandong_Kopili2-DD-MM-YYYY (Please start the table from column A instead of column B)

h. Kopili-DD-MM-YYYY

Also it is requested to send all data files for a day, by 01:00 Hrs of the next day at the same time when data is given telephonically.

Deliberation in the meeting

NERLDC requested all the utilities to provide the data as per the given formats. Formats will be circulated by NERLDC again. Also it is requested to send all data files for a day, by 01:00 Hrs of the next day at the same time when data is given telephonically.

The Sub-Committee noted as above.

D.29. Telemetry Availability Status at NERLDC from Constituents as on 07-09-2018 at 16:30hrs.

Sl No.	Name of the Constituents	Total Analog	Total Digital	Total Data Points	Analog Reporting	Digital Reporting	Total Reporting	Total Percentage of data Availability
1	Arunachal Pradesh	104	149	253	6	4	10	3.95%
2	Assam	1217	1731	2948	534	578	1112	37.72%
3	Manipur	180	255	435	97	161	258	59.31%
4	Meghalaya	409	388	797	262	125	387	48.55%
5	Mizoram	71	50	121	9	9	18	14.87%
6	Nagaland	237	270	507	0	0	0	0%
7	Tripura	524	715	1239	148	169	317	25.58%
8	PGCIL	628	1082	1710	412	733	1145	66.95%
9	NEEPCO	202	286	488	143	190	333	68.23%
10	NTPC	31	49	80	23	49	72	90%
11	OTPC	44	90	134	41	81	122	91.04%
12	NHPC	18	29	47	17	27	44	93.61%

Note: Assam and Meghalaya may kindly give reason for Total Measurand reduction.

Deliberation in the meeting

DoP Ar. Pradesh representative informed that SIMs have been procured for all the locations. The same would handed over immediately to NERTS for implementation. *The status of data verified as on 11.09.18 is as below:*

SN	Name of the Constituents	Total Analog	Total Digital	Total Data Points	Analog Reporting	Digital Reporting	Total Reporting	Total Percentage of data Availability
1	PGCIL	531	1023	1554	432	796	1228	79%

Note:

1. Kolashib substation is a state owned station and excluded from central sector as already clarified in 9/10th NETeST.
2. For BNC, Subansiri Line 374, associated tie bays are not charged and so to be excluded.
3. For BNC Fire angle etc was not available as per approved List of LD&C and so not configured. Regarding Filter Bank, NERLDC have been communicated over email Dtd.14.8.18 to incorporate only 3 banks (Z1-8498, Z2-8499, Z3-8450; as individual sub bank configuration not done at site. Further ICT MW is done in HV side, the same may be acc mapped.

Further, considering outage of Dimapur, Roing and Tezu permanent in nature due to fire hazard at Dimapur, Unreliable communication the in Roing the status can be revised as below without considering the said stations for the time being:

SN	Name of the Constituents	Total Analog	Total Digital	Total Data Points	Analog Reporting	Digital Reporting	Total Reporting	Total Percentage of data Availability
1	PGCIL	470	920	1390	416	791	1207	86%

Note: For ease of trouble shooting, NERLDC may provide signal list of all stations (at one go, in a folder containing excel format of IO list with address, SLD of each station, recommended gateway/RTU setting as required for RLDC SCADA integration(eng. Low high, scan rate) for ease of checking of each substation locally.

The Sub-Committee noted as above.

Action: all utilities as above.

D.30. <u>Procurement of additional 70 Laptops:</u>

NERTS intimated the following in 147th. OCC meeting:

As informed in 146th OCCM, NOA Placed on 06.07.2018. As per the Contract Delivery Schedule 06(Six) Months i.e. by January-2019.

Fresh Offer for license for MS Office from different parties is expected by 16.08.2018. As intimated earlier procurement of MS Office is targeted by Jan'19.

Deliberation in the meeting

NERTS intimated the following:

Status of Laptop:

- *Laptop received at the following Locations:-*

Misa (Assam - 30 Nos.), Nirjuli (Arunachal Pradesh - 08 Nos), Kumarghat (Tripura - 08 Nos), Khliehriat (Meghalaya - 06 Nos), Aizawl(Mizoram - 04 Nos).

- *Pending Receipt at :*

Imphal (Manipur - 08 Nos.) & Dimapur (Nagaland - 06 Nos).

Status of paper License:

- Cost estimate put up for Approval.
- Tendering Expected by September-2018.
- Delivery By: October-2018

It was intimated that on receipt of Software by Oct'18, these would be installed in Laptops and same can be delivered to all utilities as per list agreed in OCC by Nov'18.

The Sub-Committee noted as above.

D.31. Installation of new L&T SEMs in NER:

Khandong (05 SEMs): Installation in halt.

After discussion in 147th. OCC meeting, NEEPCO representative agreed for installation of SEM at Khandong without availing shutdown.

Deliberation in the meeting

As per discussion with Khangdong (NEEPCO) 4 SEMs were pending out of which 01 No. already installed. Balance could not be installed as NEEPCO needed shut down to install the SEM prior to agreeing without Shut Down.

It was agreed that a date would be confirmed from NEEPCO and same would be intimated by NERLDC to NERTS for needful.

Mizoram(State): 2 SEMs...Not Completed

Two SEMs are to be installed. One at LONGMOL end and the other at ZUAGTUI end. POWERGRID team approached the P&E officials who informed that they need approval from their higher officials for installation of SEMs. The installation is pending due to delay on part of M/s P&E Deptt. Mizoram. Matter may be discussed.

In 147th. OCC meeting, EE-SLDC Mizoram agreed to look into and obtain internal approval at the earliest.

It was agreed that before any new installation of Meter, NERTS would intimate the programme to NERLDC and NERLDC would take up the matter with respective utility. After getting clearance from NERLDC, NERTS would proceed for installation.

Deliberation in the meeting

SEM not yet installed due to non-receipt of Consent from P&E, Mizoram.

Mizoram representative stated that meters cannot be installed in the current panel and installation would be possible only after new panels are put in place in both substations which are expected within a month time.

Loktak: Check Meters installation status may be updated.

Deliberation in the meeting

As per MOM NHPC agreed to install 4 nos. of SEM and accordingly, POWERGRID has handedover the SEMs to NHPC on 16.07.2018. NHPC representative intimated that they would install meters shortly.

NTPC-BgTPP: Check Meters installation status may be updated.

Deliberation in the meeting

Check Meters were already installed at NTPC-BgTPP long back as confirmed by NTPC and further checked by POWERGRID. It was clarified by NERLDC that the check meters would have to be replaced by new L&T meters and for this communication has already been sent to NERTS.

Silchar: Replacement of faulty Meter no. NP-8569-A (connected in 132 kV PK'Bari ckt-1, faulty since 29/08/18)

Deliberation in the meeting

The Faulty SEM was replaced by new SEM on 10.09.2018.

The Sub-Committee noted as above.

D.32. Procurement of DCD:

NERTS intimated the following in 147th. OCC meeting:

For amendment of the LOA (for additional supply of DCD) , PO required to be amended with GST implication. GST declaration is required from M/s L&T for issuance of GST amended PO. M/s L&T on 08.08.2018 have intimated that the

matter has been taken by M/s L&T with their finance. On confirmation of submission of GST declaration, amendment can be issued for supply of DCD.

Deliberation in the meeting

Confirmation about GST declaration not yet received from M/s L&T after several follow ups. In this respect NERTS proposed that the procurement may be taken up directly from the supplier instead of procurement through M/s L&T.

OCC agreed to the proposal and NERTS was advised to expedite.

The Sub-Committee noted as above.

D.33. Time drift in SEMs.

In 147th. OCC meeting, NERLDC highlighted the need of regular time correction of SEMs and intimated that such time drift was causing unwanted financial loss to the utilities on account of inaction on their part.

The procedure for time correction steps was explained as below:

1. Press "P" in DCD
2. Enter password "XMISSION"
3. Press "A" or "R" for time advance/retard

After this, SEM should be kept powered ON for 90 minutes.

NTPC reported vide e-mail dated 30/08/18 that time drift correction at BgTPP end could not be done due to DCD issue. Since all 3 main meters have drifted by more than 5 minutes new L&T make meters may be installed.

Deliberation in the meeting

It was intimated by NERTS that *Communication in regard to replacement of SEM received from NERLDC on 06.09.2018/12.09.2018 through mail. Same has been taken up. Replacement planned by 25-09-2018(SEM meter to be diverted from Misa to Bongaigaon S/S).*

The Sub-Committee noted as above.

D.34 Replacement of SEMs.

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

Following was agreed in 147th. OCC meeting:

The SEM meters has already been diverted to POWERGRID, Kumarghat S/S. The SEM will be sent to OTPC Pallatana within this week.

OTPC requested for deputing POWERGRID personnel for installation which was agreed to.

Deliberation in the meeting

NERTS intimated that as agreed by OTPC , SEM were handed over to OTPC and installation of the SEMs by OTPC. OTPC may update the status.

The Sub-Committee noted as above.

D.35 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. In 146th. OCC 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. Status may be discussed.

In 147th. OCC meeting, TSECL representative intimated that there was some issue with the Laptop and it would be handed over to NERTS at the earliest for rectification.

Deliberation in the meeting

TSECL intimated that the problem of Laptop has been resolved and they would start sending data using Laptop.

The Sub-Committee noted as above.

ADDITIONAL AGENDA FROM NERLDC:

D.36 Continuous Planned Shutdown of 220/132 kV, 50 MVA ICT at AGIA S/S (Assam):

The planned Shutdown of the 220/132 KV,50 MVAR ICT at AGIA S/S was approved by 147 OCC Meeting and Shut down was accorded by NERLDC vide code no 2721 dated 11/8/2018 wef 0900 hrs to 17:00 Hrs of 13th August'18 . But till date, the SD has not been withdrawn/return by Assam.

Deliberation in the meeting

SLDC, Assam intimated that the ICT has been taken into service w.e.f. 13.09.18(08:00hrs). GM, NERLDC suggested that list of elements under outage shall be informed to the utilities on weekly basis so that the utilities can take action. On monthly basis NERLDC needs to inform CERC the list of elements under prolonged outage as per regulations.

The Sub-Committee noted as above.

D.37 Opportunity S/D availed by PG without prior consent from NERLDC for 400 kV Balipara-Bongaigaon-4 line which was opened due due to High Voltage.

400 KV Balipara-Bongaigaon line-4 was hand tripped at 05:22 Hrs on 03/09/2018 due to system high voltage as usual at Balipara Bus(419 KV). At 12:27 Hrs system voltage observed at Bongaigaon S/S was 414 Kv due to which NERLDC issued charging code vide ref No. 3317 for charging of the line. While giving code it came to our notice that they availed opportunity SD of the said line. The line was finally charged at 16:17 hrs without taking prior approval of NERLDC Control Room.

Deliberation in the meeting

NERLDC informed the forum about the incident on 3rd Sep'18 and requested all utilities to take permission before availing any opportunity Shutdown. The forum decided that henceforth all opportunity shutdown is to be intimated to NERLDC.

The Sub-Committee noted as above.

Action: all utilties.

D.38 Planned S/D OF 132 KV Jiribam-Tipaimukh line failed to avail due to Communication problem:

Planned SD of 132 kV Jiribam-Tipaimukh line was approved in the 147th OCC w.e.f. 08:30 hrs to 16:00 Hrs on 12/8/18. NERLDC issued code 2737 to CPCC, Shillong & Manipur SLDC at 09:10 Hrs for opening of the line. But due to communication problem with Tipaimukh S/S, PGCIL could not avail the S/D on that day. As LILO of 132 kV Jiribam-Aizwal line has been made at Tipaimukh S/S(Manipur) in between this very Critical inter-state line, it is indispenble to install dedicated & reliable communication system for telemetry data & Voice as well.

Deliberation in the meeting

NERLDC informed the forum that,POWERGRID(JIRIBAM) could not avail the shutdown due to lack of communication system with Tipaimukh S/S eventhough S/D codes were issued on 12.08.18. NERLDC once again requested MSPCL to ful-fill all requirements before charging the newly expected Thoubal S/S citing the example of 132 KV Tipaimukh S/S in which the issue of telemetry and voice communication system is still pending. The forum decided to refer the matter to the next TCC/RPC meeting for resolution.

The Sub-Committee noted as above.

Action: NERPC.

D.39 Planned S/D of 400 kV Palatana-Silchar-II, Palatana ICT-II (400/132 kV,125MVA) and 400 kV BUS at Palatana:

The above noted line & ICT S/D was accorded wef 0800 hrs to 1600 hrs on 09.09.18.During the S/D periods, Bangladesh load was restricted to 100 MW till 1600 hrs The S/D could not return within the stipulated time inspite of repeated requests and mail from NERLDC. Finally, the S/D returned at 1747 hrs. Due to the delay in returning the S/D, Tripura system alongwith Bangladesh was highly in critical condition and ICT-1 was also critically overloaded more than 120 MW. In view of the above taking into account system security & reliability, it is of utmost important to return the approved S/Ds of all elements within the stipulated time to avoid any disturbance.

Deliberation in the meeting

The forum strongly noted the non-returning of above shutdown within the stipulated time. Since the matter has international ramifications members requested all concerned utilities NERTS, OTPC to refrain from such delays in the future.

The Sub-Committee noted as above.

Action: NERTS, OTPC.

AGENDA ITEMS FROM TSECL

D.40 Restriction on Bangladesh drawal by NERLDC due to shutdown of elements:

It is seen while approving the s/d of 132 KV S M Nagar – Palatana & any ckt of 400 KV Palatana – Silchar or 400/132 KV ICT at Palatana the restriction on drawal/demand of Tripura state is splitting in 1) Tripura state demand, 2) Bangladesh drawal & restrictions of Bangladesh are being imposed through NLDC.

In this entire practice of calculating demand restriction, the internal breakdown/ shutdowns or planned load curtailment of Tripura system are not being considered in recent time particularly on 9th Sept'2018 at the time of 400 KV one ckt. s/d at Palatana i/c one ICT, results state faced extra commercial loss. In this case, Bangladesh restriction to 100 MW was not necessary as planned internal load curtailment of Tripura system was around 50 to 60 MW for pre-puja maintenance activities.

So, while allowing such s/d in future it is required to consider Tripura demand including Bangladesh as a single unit, so that state can manage its impact with

internal activities like internal load curtailment for planned maintenance works. Forum may take this accordingly.

Deliberation in the meeting

Sr. Manager, TSECL strongly viewed the unilateral decision of NERLDC to restrict Bangladesh load without considering the measures taken by TSECL. He informed that number of shutdowns were underway and also Tripura internal load curtailment was undertaken. This was not considered in the study conducted by NERLDC.

NERLDC informed the forum that the study results were presented during last OCC meeting and during the shutdown it was also seen that the voltage profile of Tripura system was also low. NERLDC also informed that the internal shutdown of Tripura was not informed to NERLDC. NERLDC also informed Tripura that in most cases demand including Bangladesh will be given but during critical shutdown drawl of Bangladesh will be specifically mentioned.

GM, NERLDC informed that Bangladesh load was curtailed so as not to endanger the NER grid and the national grid in totality. After detailed deliberation, the forum requested TSECL to conduct necessary operational studies in the future and provide NERLDC with the study results.

The Sub-Committee noted as above.
Action: NERLDC, TSECL.

AGENDA ITEMS FROM NERTS

D.41 Replacement of obsolete RTUs:

Under ULDC phase1 project in NER, M/S Alstom Make S900 RTUs were installed in various stations of NER including POWERGRID stations during 2001 - 2003. List of POWERGRID stations is given below:

SN	Names of Stations	kV	Details of RTU
1	Badarpur	132	S900-GEC Alsthom
2	Jiribam	132	S900-GEC Alsthom
3	Aizawl	132	S900-GEC Alsthom
4	Kumarghat	132	S900-GEC Alsthom
5	Haflong	132	S900-GEC Alsthom
6	Khliehriat	132	S900-GEC Alsthom
7	Imphal	132	S900-GEC Alsthom

8	Nirjuli	132	S900-GEC Alsthom
9	Balipara	400	S900-GEC Alsthom
10	Salakati	220	C264-Areva, old CPU type
11	Bongaigaon	400	S900-GEC Alsthom
12	Misa	400	S900-GEC Alsthom
13	Dimapur	220	S900-GEC Alsthom
15	Ziro	132	There was no RTU installed in ULDC phase at Ziro Sub Station. However, POWERGRID installed Calliston – Nx RTU for Remote operation and Data Communication without any cost booking. Presently, remote operation is being carried out using RTUs installed under RTAMC project. However, for Data Purpose the existing obsolete Calliston – Nx RTU is frequently hanging and requires replacement.

Now, the S-900 RTUs of M/S Alstom has already become obsolete and there is no service support from OEM as well as availability of spares in market. POWERGRID is maintaining those RTUs departmentally till now but, all the spares got exhausted the maintenance has become difficult.

As 15 Years has already been completed, it is proposed to replace all the above RTUs under PoC Mechanism. The financial implication for the same will be around Rs. 5.00 Crores which is inclusive of AMC for 7 (1+6) years where supply of requisite test tools, providing training, FRTU-Portable test RTU-2nos & minimum spare is also included.

Deliberation in the meeting

The forum approved in-principle and referred the matter to the next TCC/RPC.

The Sub-Committee noted as above.

Action: NERPC.

D.42 REQUIREMENT OF ONE NO. SCADA CONSOLE PC FOR NERTS

In order have proper monitoring of data for prompt operation & maintenance, extension of SCADA EMS system of NERLDC to NERTS is required. Accordingly, it is proposed to provide one no. of SCADA CONSOLE PC by NERLDC through existing SCADA/EMS contract of GE for which NERTS will bear the cost.

Deliberation in the meeting

GM, NERLDC expressed reservation in providing the console considering Cyber Security aspects. The forum requested NERLDC and NERTS to resolve the matter bilaterally.

The Sub-Committee noted as above.

Action: NERTS/NERLDC.

D.43 SHIFTING OF 50 MVA, 220/132KV TRANSFORMER OF NEEPCO FROM BALIPARA (PG) SS BY NEEPCO

The 50 MVA, 220/132kV transformer (Bharat Bijlee make) of NEEPCO at 400kV Balipara (PG) SS is being replaced by a new 160 MVA, 220/132kV Transformer by POWERGRID under NERSS – III project. Dismantling of the transformer has already been taken up by POWERGRID.

In view above, NEEPCO may take up necessary action for shifting their 50MVA transformer from POWERGRID premises to NEEPCO premises.

Deliberation in the meeting

Sr. Manager, NEEPCO informed that upon upgradation with 220/132kV 160MVA ICT at Balipara the old 50MVA ICT has become spare and they do not have space for storage of the same. NEEPCO requested POWERGRID for storage of the transformer and they are ready to bear the cost for development of storage facility at Balipara by POWERGRID. Accordingly, POWERGRID with submit the cost estimate to NEEPCO for development of required storage facility at Balipara.

Director(O&P), NERPC suggested that the ICT may be declared as regional spare against 220/132kV 50MVA ICT at Agia. The forum welcomed the suggestion and requested NEEPCO to initiate necessary process in this regard.

The Sub-Committee noted as above.

Action: NERTS/NERLDC.

D.44 Provision of additional ethernet links:

Provision of Ethernet Links for Misa to Back Up NERLDC & Badarpur to Back up NERLDC1. For Commissioning of Terminal servers at Misa & Badarpur and onward reporting to Back Up NERLDC, 2nos. Ethernet links from each substation (Misa, Badarpur) is required. The requirement related to Main NERLDC Shillong has already been met from equipment (ECI make) installed under MW Vacation project. However for Back up NERLDC at Guwahati, there is no back bone fiber connectivity to Back bone network. Further networking & connectivity is planned unde NER FO Expansion with STM16 Hence as discussed with NERLDC, keeping in view technical requirement, a quotation has been collected from POWERTEL as per which , financial implication is as follows:

S.N.	Description of Item	Annual Charge Rs./Annum
1	2MBPS E1 X2nos---Links on Ethernet link from Misa to Back Up NERLDC Guwahati	317874 plus Taxes
2	2MBPS E1 X2nos---Links on Ethernet link from Badarpur to Back Up NERLDC Guwahati	392379 plus Taxes
	Grand Total	710253.00+tax

The discounts have been applied as per norms as intimated by POWERTEL

Note1: The above links are proposed to be kept initially for 1year beyond completion of NER FO expansion project (Dec 2019).

Note2: The same will serve redundancy & protection (Back up) to future backbone network (under NER FO expansion) in line with proposed redundancy as was discussed in 17TH NERPC, ItemA.15, Page-27-".....back up/Main-1&2 criteria...".

Deliberation in the meeting

The forum approved in-principle and referred the matter to the next TCC/RPC.

The Sub-Committee noted as above.

Action: NERPC.

Date & Venue of next OCC meeting

It is proposed to hold the 149th OCC meeting of NERPC on second week of October, 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 148th OCC Meeting held on 14th September, 2018

SN	Name & Designation	Organization	Contact No.
1.	Sh. Domo Kamduk, AE (E), SLDC	Ar. Pradesh	09436671717
2.	Sh. K.Gogoi, DGM,SLDC	Assam	09435301799
3.	Sh. Dipesh Ch. Das, AGM (LDC)	Assam	09954110254
4.	Sh. Anirban Roy, DGM, APGCL	Assam	09435386310
5.	Sh. Bimal Ch. Borah, AGM, SLDC	Assam	09475119248
6.	Sh. Pintu Dekaraju, AGM, APDCL	Assam	09401516094
7.	Sh. Jyoti Prasad Rabha, AM, APDCL	Assam	08402981282
8.	Sh. R. Choudhury, DGM (TRC), APDCL	Assam	09435143426
9.	Sh. K. Goswami, Consultant, APDCL	Assam	09864020019
10.	Sh. Laishram Ritu, Manager, SLDC, MSPCL	Manipur	09612882984
11.	Sh. khoisnam Steela, Mgr., SLDC, MSPCL	Manipur	08730831103
12.	Sh. T. Gidon, EE, SLDC	Meghalaya	09774479956
13.	Sh. Y. Iakai, AE, MePTCL	Meghalaya	09402133552
14.	Sh. Yuri Kharpuri, AE, MePTCL	Meghalaya	09774507325
15.	Sh. Kitbok Kynjing, AE, MePTCL	Meghalaya	09481170010
16.	Sh. Benjamin L. Tlumtea, Sr. EE, SLDC	Mizoram	09436151424
17.	Sh. Nitovi A. Wotsa, EE (E), SLDC	Nagaland	09436004928
18.	Sh. Debabrata Pal, Sr. Manager (Comml.)	Tripura	09436500244
19.	Sh. Joypal Roy, Sr. Manager (E/M)	NEEPCO	09435577726
20.	Sh. V. Suresh, GM	NERLDC	09449599156
21.	Sh. R. Sutradhar , DGM (MO)	NERLDC	09436302714
22.	Sh. S.C. De, AGM	NERLDC	09436325369
23.	Smti. Momai Dey, Sr. Engineer	NERLDC	09436302716
24.	Sh. Tapobrata Paul, Engineer	NERLDC	07085012850
25.	Sh. Ankit Jain, Sr. Engineer	NERLDC	09436335381
26.	Sh. Kamal Krishna Kumar, Sr. Engineer	NERLDC	09435706415
27.	Sh. Keshab Borah, Asst. Engineer	NERLDC	07399276312
28.	Sh. P. Kanungo, DGM	PGCIL	09436302823
29.	Sh. U. Kataki, AGM	PGCIL	09435505418
30.	Sh. Pulak Deka, Dy. Manager (Mech.)	NHPC	09435187838
31.	Sh. Narendra Gupta, Sr. Manager	OTPC	09774233426
32.	Sh. Kangkan Paul, Dy. Manager	NTPC	09435029230

33.	Sh. P.K. Mishra, Member secretary	NERPC	09968380242
34.	Sh. B. Lyngkhoi, Director/S.E (C&O)	NERPC	09436163419
35.	Sh. S. Mukherjee, AD	NERPC	08794277306
36.	Sh. S. Ranjan, AD	NERPC	07739437669

उ.पू.क्षे ग्रिड प्रदर्शन

NER GRID PERFORMANCE

For Month: August'2018

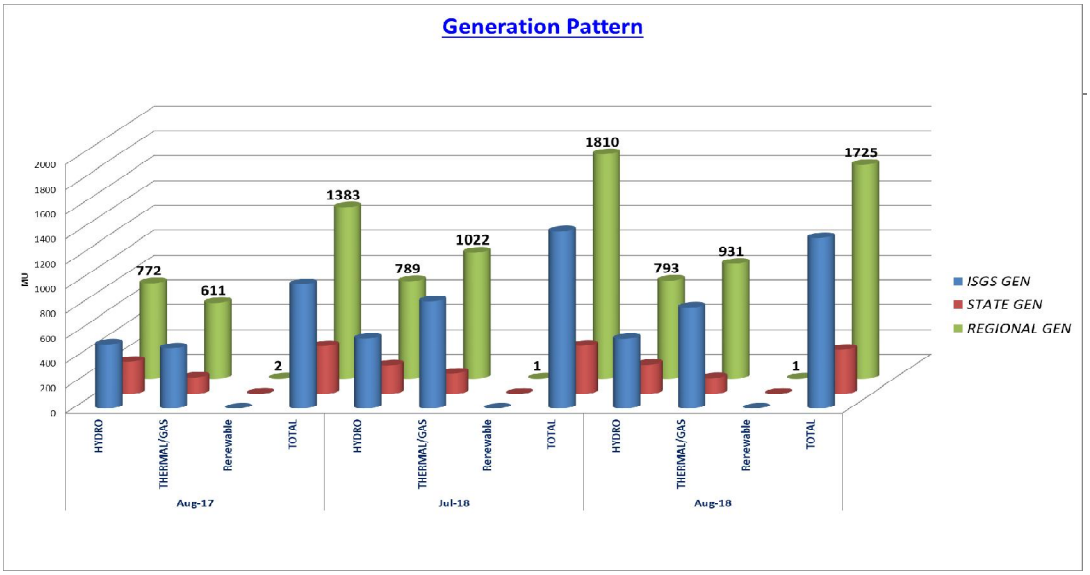
NORTH EASTERN REGIONAL LOAD DESPATCH CENTRE

POSOCO, SHILLONG

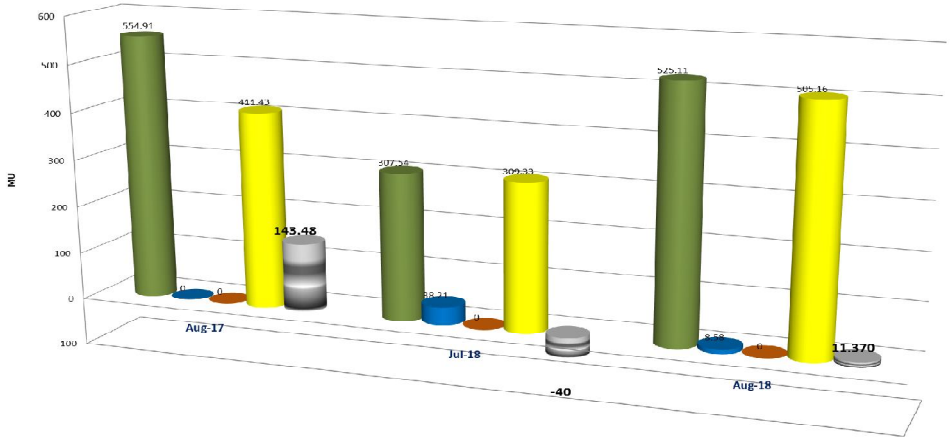
Highlights for the month of September'2018:

1. WBES has been made live from 1st of September.
2. Reporting software is planned to be lived shortly.

Comparison of Generation Pattern (in MU)



Comparison of Interregional Exchange (in MU)



	Aug-17	Jul-18	Aug-18
ER-NER	554.91	307.54	525.11
NER-ER	0	38.21	8.58
NR-NER	0	0	0
NER-NR	411.43	309.33	505.16
Net Import(+) /Export(-)	143.48	-40	11.370

Comparison of Energy Availability (in MU)

Constituents	Energy Met (MU)		Difference	% Difference	Energy Met (MU) per Day	
	Aug-17	Aug-18			Aug-17	Aug-18
Arunachal	64.99	70.18	5.19	7.99	2.17	2.34
Assam	919.39	1023.54	104.15	11.33	30.65	34.12
Manipur	65.62	70.25	4.63	7.06	2.19	2.34
Meghalaya	123.02	166.90	43.88	35.67	4.10	5.56
Mizoram	36.01	49.56	13.54	37.61	1.20	1.65
Nagaland	71.88	73.96	2.08	2.89	2.40	2.47
Tripura(Excluding Bangladesh)	216.32	245.65	29.33	13.56	7.21	8.19
Region(Excluding Bangladesh)	1497.24	1700.04	202.81	13.55	49.91	56.67

Inter-Country Power Exchange(in MU)	
Import(+)/Exp(-) by Bhutan	68.384
Drawal by Bangladesh	101.02
Drawal by Myanmar	0.605

Maximum Demand Met of the states:

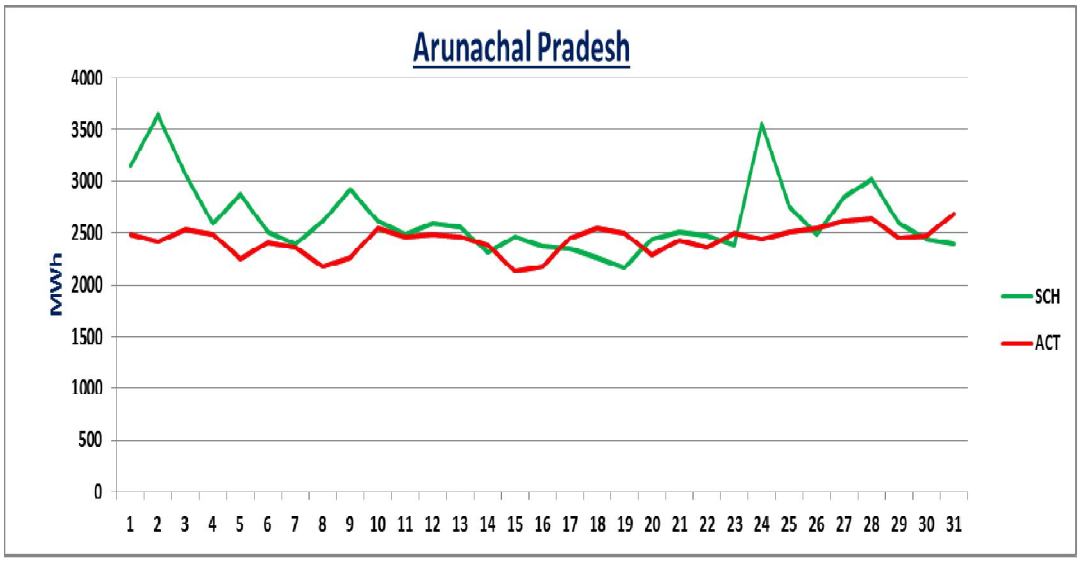
Name of Constituents	Maximum Demand Met (MW) in August'18	Maximum Demand Met (MW) in July'18	Maximum Demand Met (MW) in August'17
Ar Pradesh	133.0	128.0	130.0
Assam	1795.0	1776.0	1684.0
Manipur	175.0	171.4	163.0
Meghalaya	326.0	332.0	297.0
Mizoram	97.0	98.4	81.2
Nagaland	133.0	126.1	137.0
Tripura(Excluding Bangladesh)	287.0	288.0	271.0
Region(Excluding Bangladesh)	2795.0	2798.0	2442.0
Max Drawal by Bangladesh	195.9	176.4	162.0
Max Drawal by Myanmar	3.1	2.0	2.4

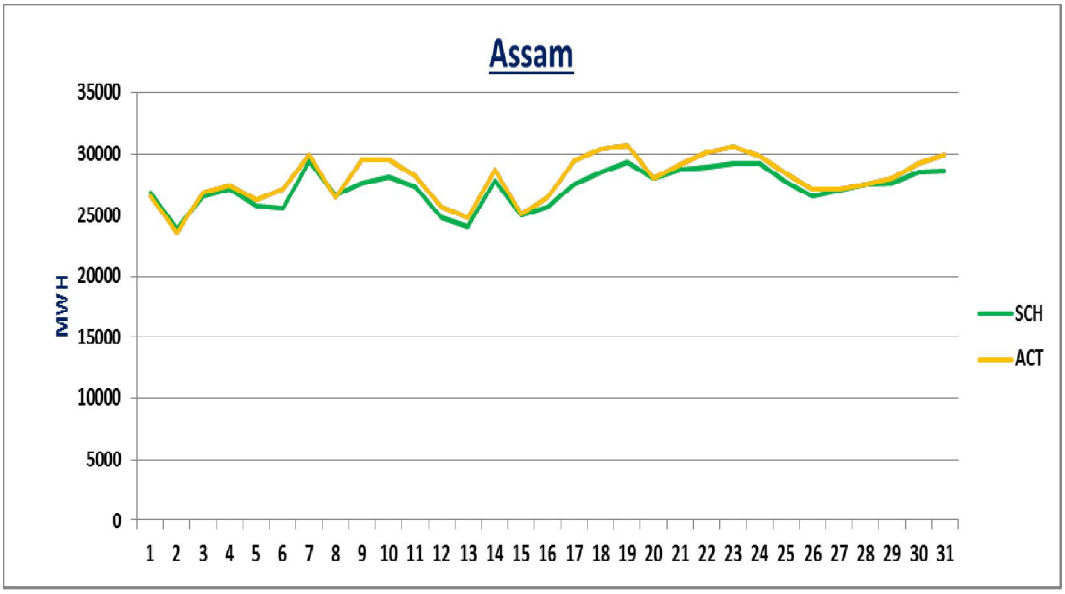
Violation Message Summary of August'2018:

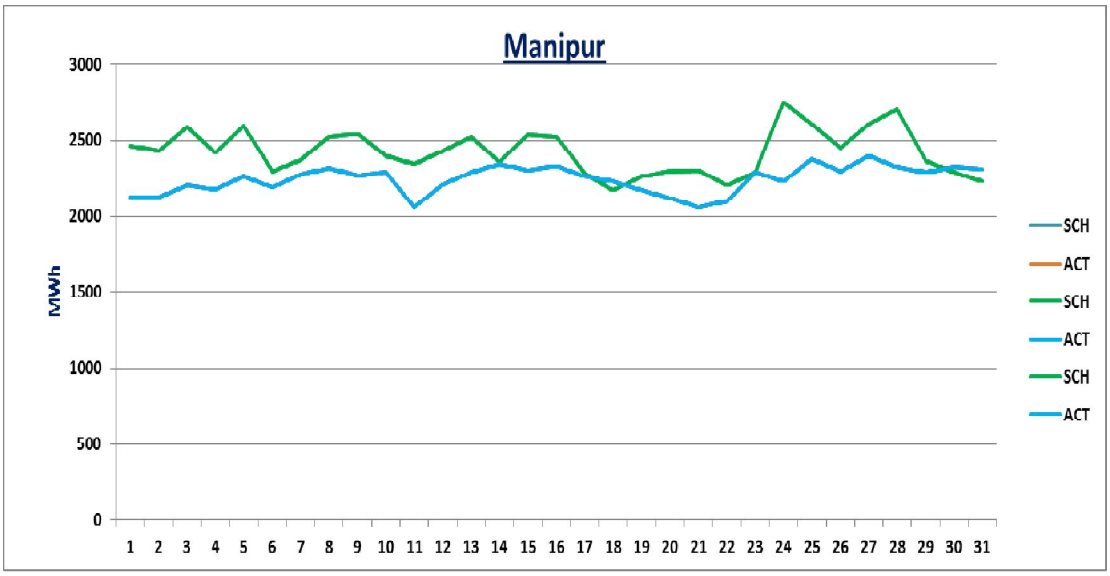
Constituents	Deviation Violation Message			Zero crossing Violation Message			Frequency Violation Message		
	Alert	Emergency	Total	Alert	Emergency	Total	Alert	Emergency	Total
AP	1	0	1	4	7	11	4	0	4
Assam	10	2	12	10	3	13	17	0	17
Manipur	1	0	1	12	7	19	7	0	7
Meghalaya	1	0	1	4	1	5	3	0	3
Mizoram	0	0	0	6	7	13	5	0	5
Nagaland	0	0	0	1	2	3	9	0	9
Tripura	11	3	14	14	8	22	9	0	9
AGBPP	0	0	0	0	0	0	0	0	0
AGTCCPP	0	0	0	0	0	0	0	0	0
RHEP	0	0	0	0	0	0	0	0	0
KOPILI	0	0	0	0	0	0	0	0	0
KHANDONG	0	0	0	0	0	0	0	0	0
KOPILI –II	0	0	0	0	0	0	0	0	0
DHEP	0	0	0	0	0	0	0	0	0
LOKTAK	0	0	0	0	0	0	0	0	0
BgTPP	0	0	0	0	0	0	0	0	0
PALATANA	0	0	0	0	0	0	0	0	0
PARE	0	0	0	0	0	0	0	0	0

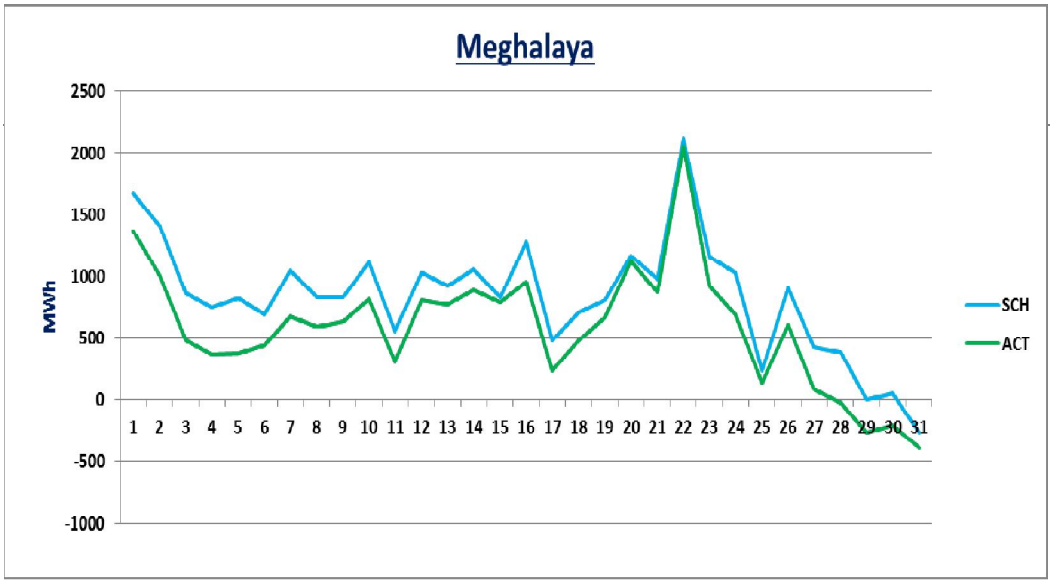
राज्यों के वास्तविक तथा शिड्यूल बिजली की आहरण

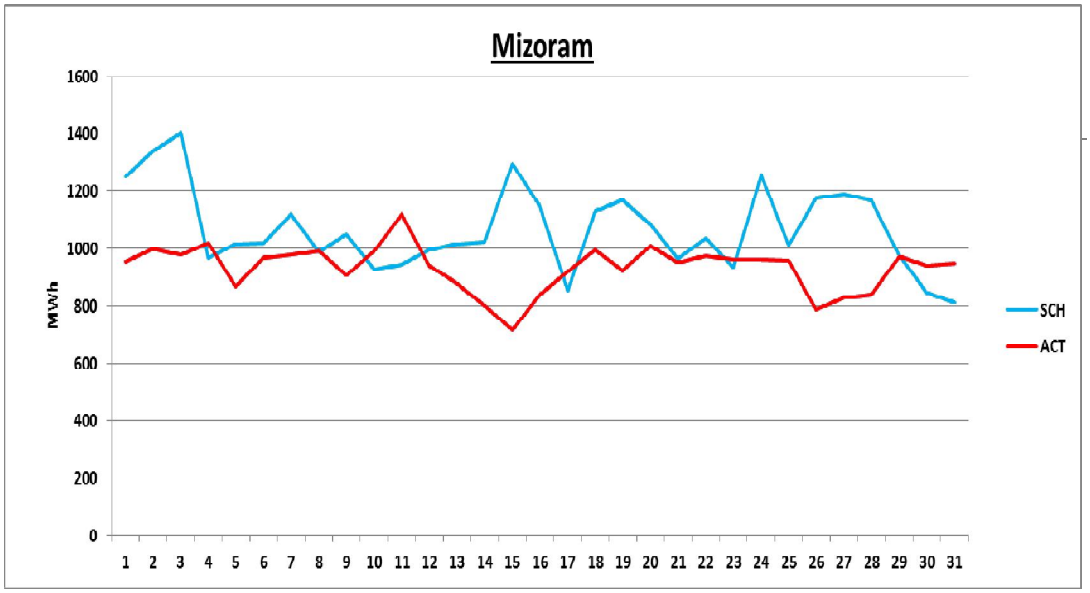
Actual drawal against Schedule Drawal by the States in MWH

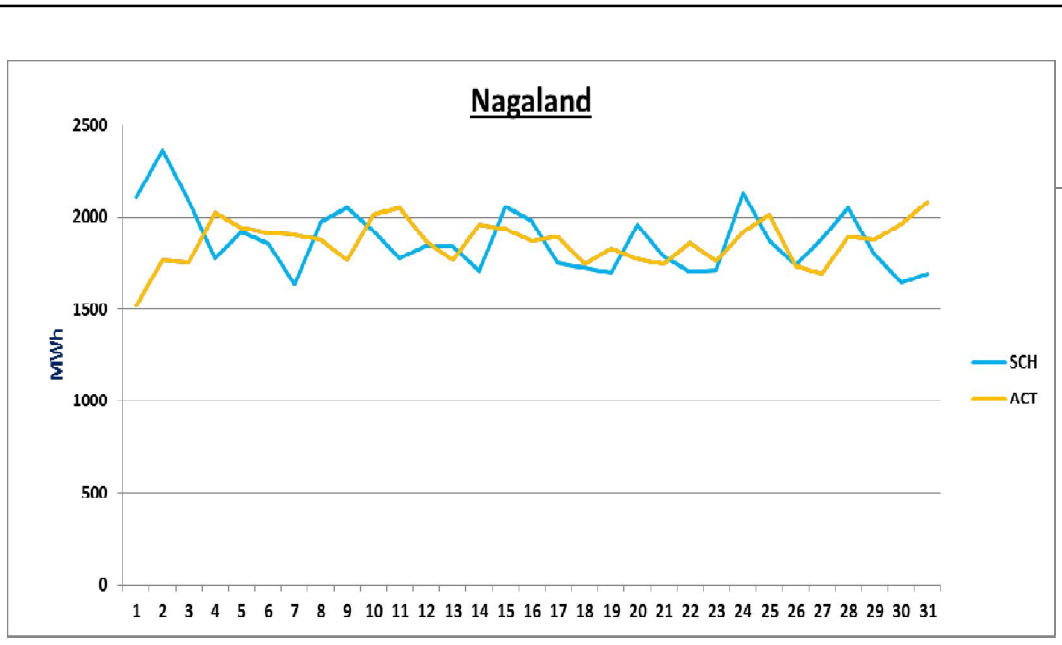

Arunachal Pradesh
MWh
4000
3500
3000
2500
2000
1500
1000
500
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SCH
ACT

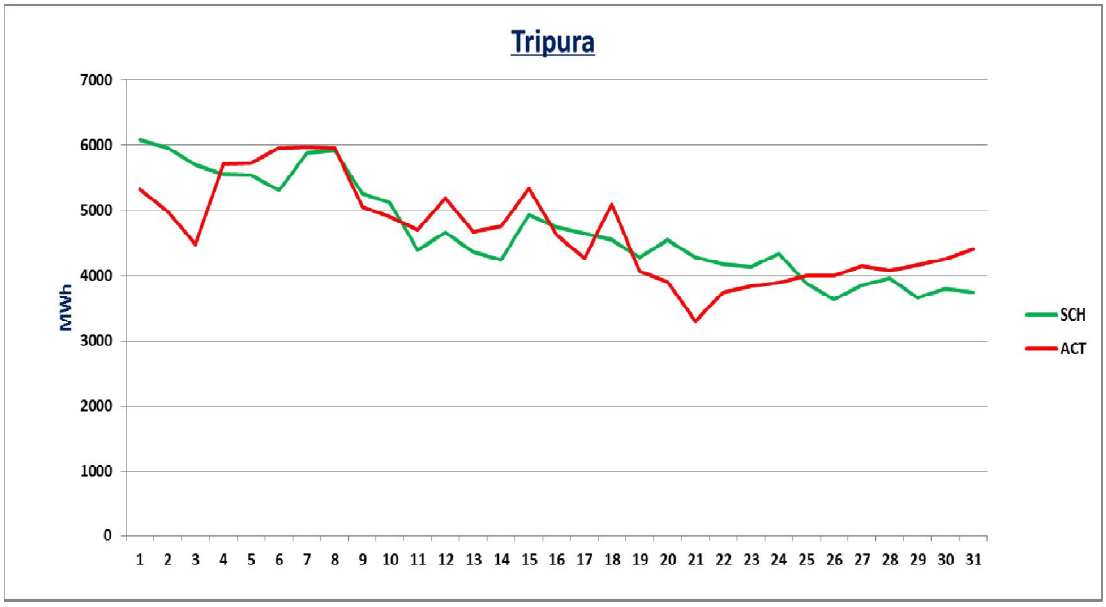

Assam
MWH
35000
30000
25000
20000
15000
10000
5000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SCH
ACT


Manipur
MWh
3000
2500
2000
1500
1000
500
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SCH
ACT
SCH
ACT
SCH
ACT


Meghalaya
MWh
2500
2000
1500
1000
500
0
-500
-1000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SCH
ACT

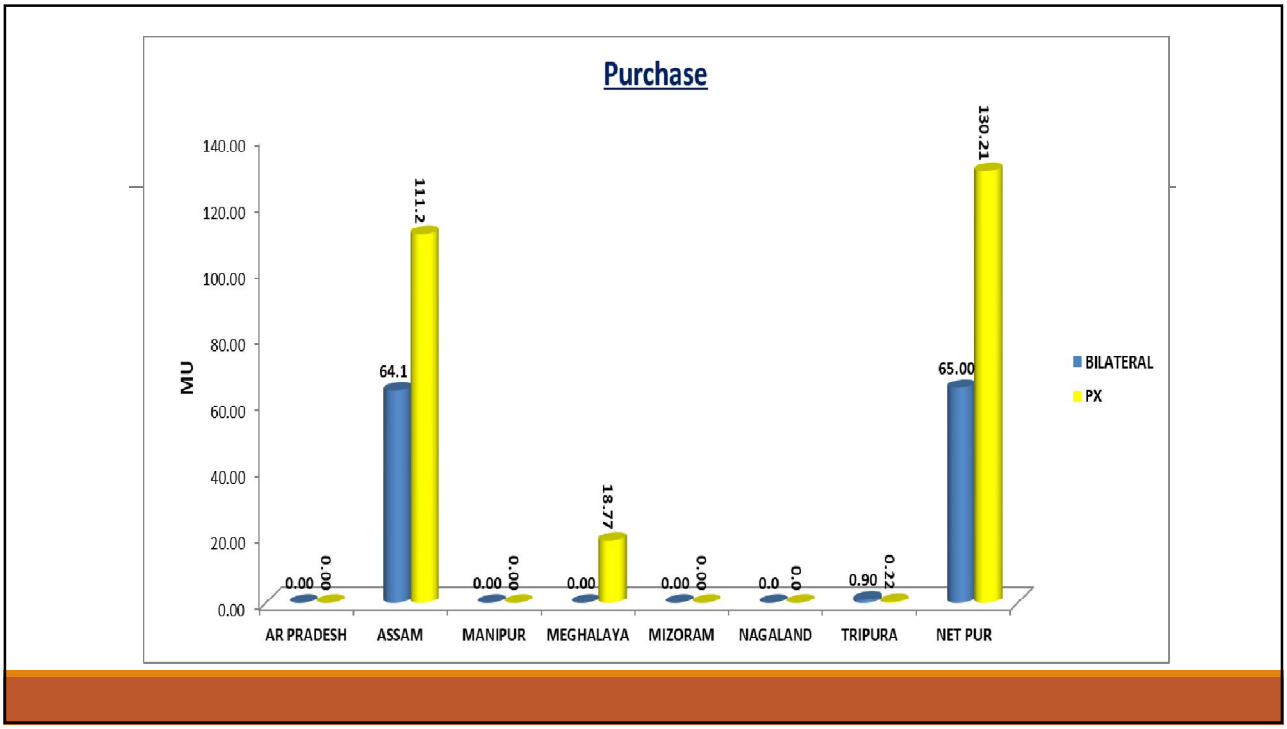

Mizoram
MWh
1600
1400
1200
1000
800
600
400
200
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SCH
ACT

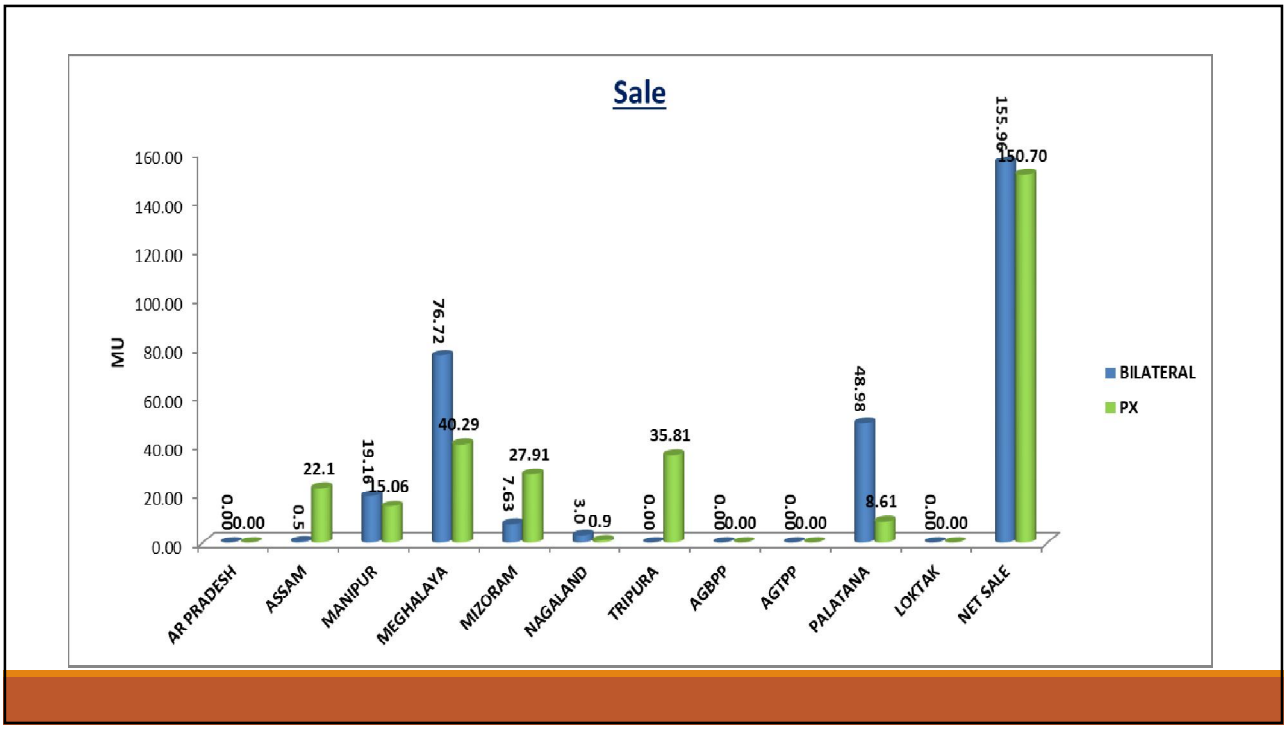

Nagaland
MWh
2500
2000
1500
1000
500
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
SCH
ACT



लघु अवधि ओपन एक्सेस के तहत राज्यों के बिजली खरीद और विक्रय

Purchase and Sell of Power by the States Under Short term open access

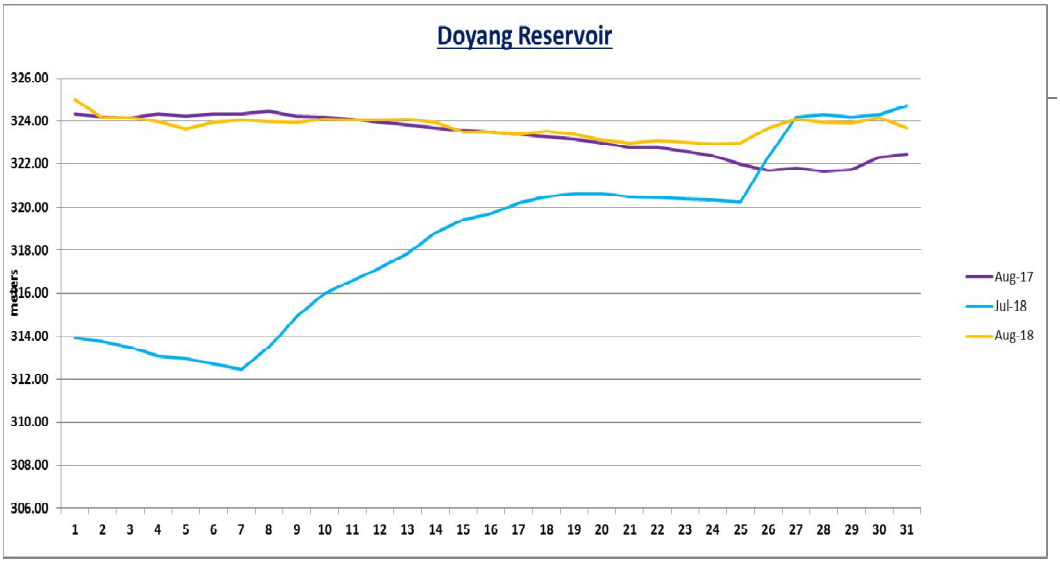

Purchase
MU
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
0.00
0.00
64.1
111.2
0.00
0.00
0.00
18.77
0.00
0.00
0.0
0.0
0.90
0.22
65.00
130.21
AR PRADESH
ASSAM
MANIPUR
MEGHALAYA
MIZORAM
NAGALAND
TRIPURA
NET PUR
BILATERAL
PX


Sale
MU
160.00
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
0.0
0.00
0.5
22.1
19.16
15.06
76.72
40.29
7.63
27.91
3.0
0.9
0.0
35.81
0.0
0.00
0.0
0.00
48.98
8.61
0.0
0.00
155.99
150.70
AR PRADESH
ASSAM
MANIPUR
MEGHALAYA
MIZORAM
NAGALAND
TRIPURA
AGBPP
AGTPP
PALATANA
LOKTAK
NET SALE
BILATERAL
PX

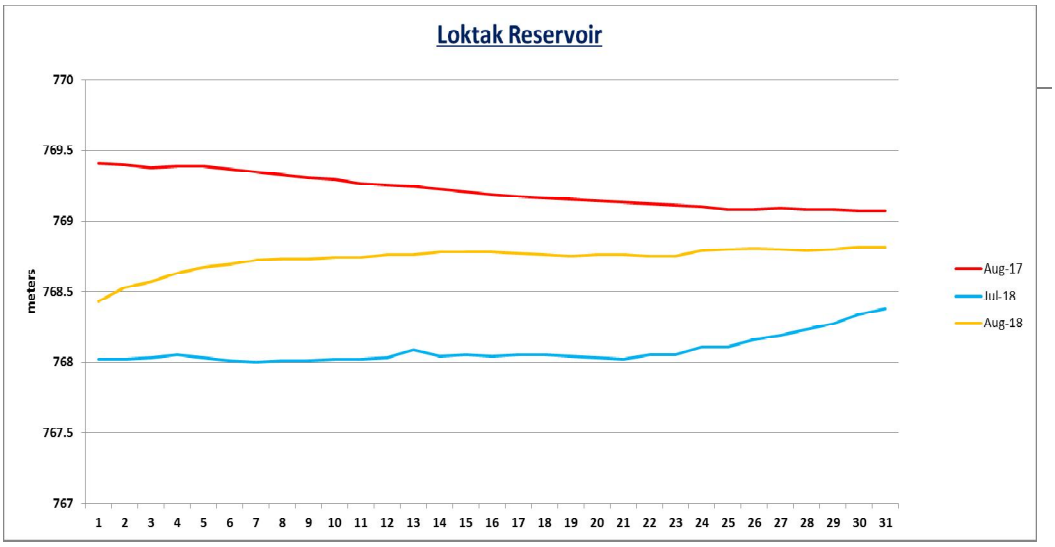
जल स्तर और एनर्जी

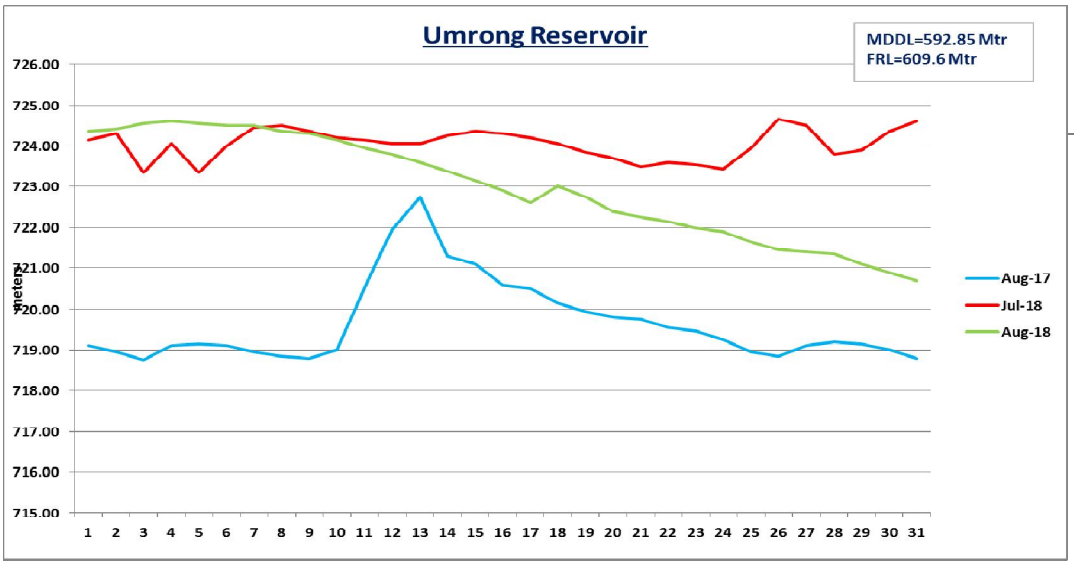
Water Level and Energy

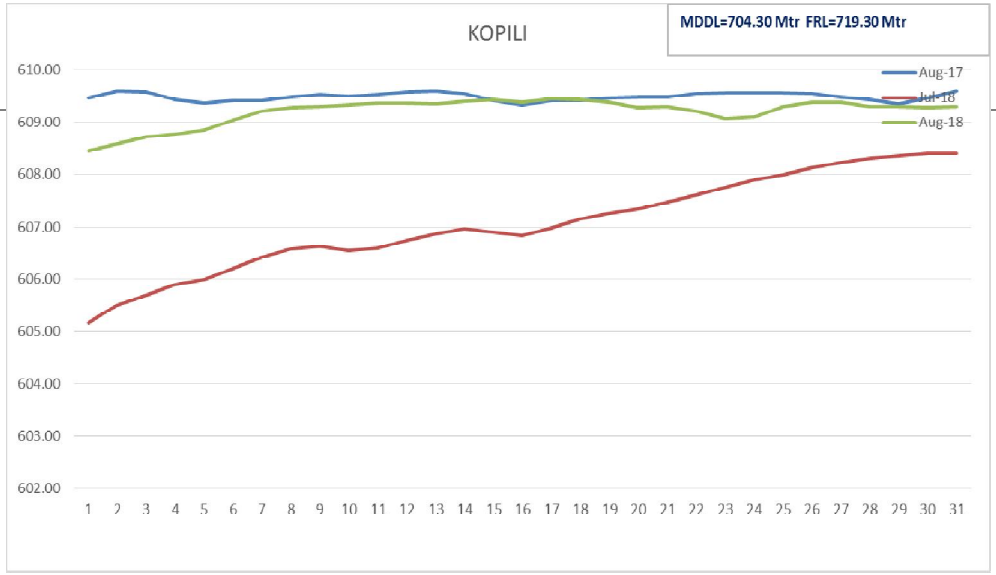
MDDL= 306 Mtr
FRL= 333 Mtr



MDDL= 766.2 Mtr
FRL= 769 Mtr



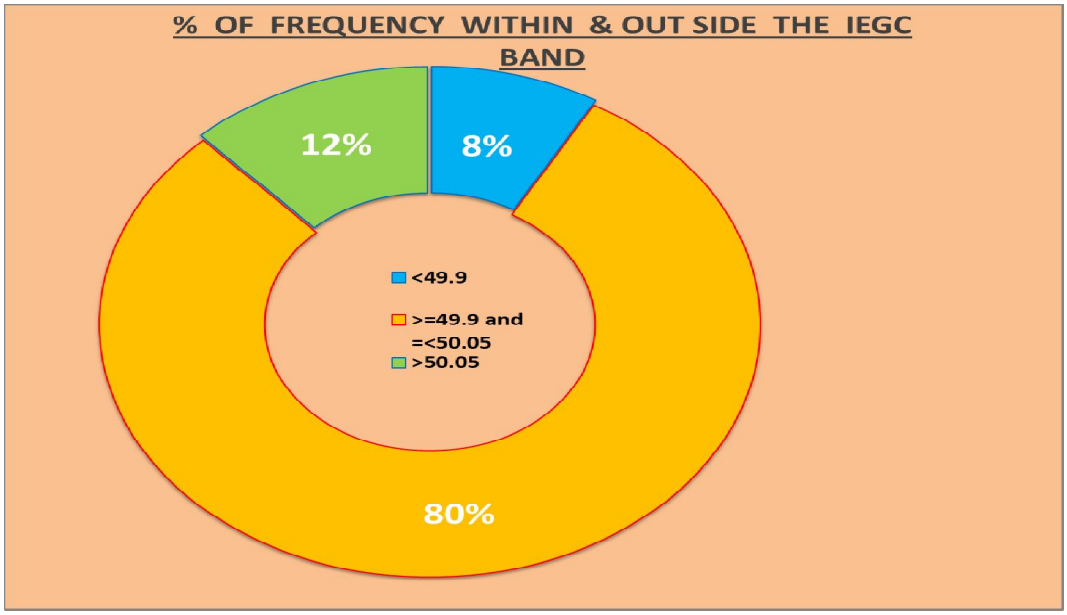


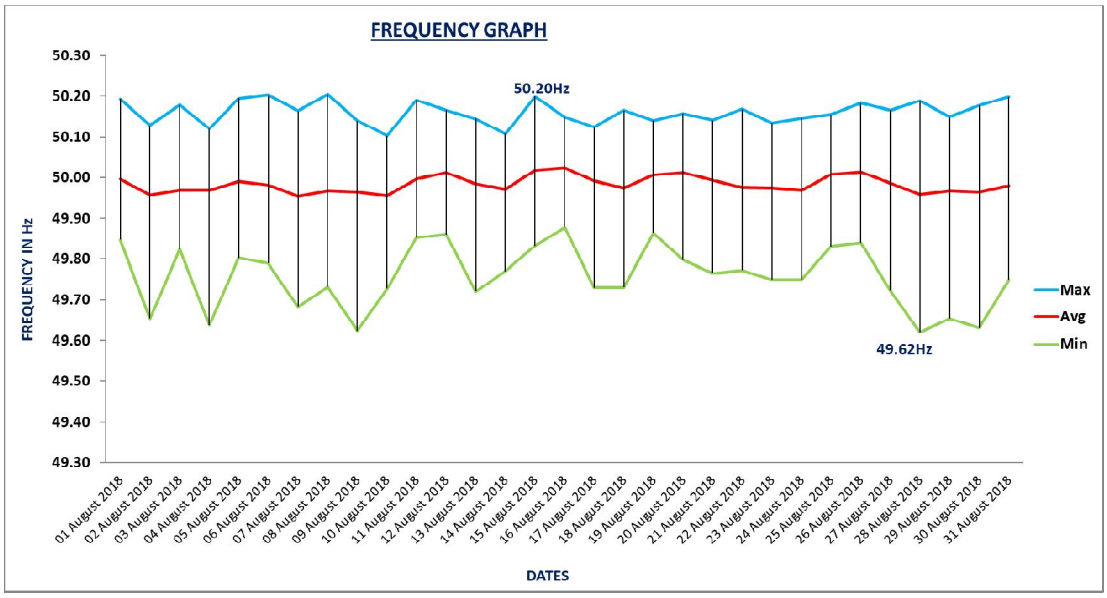


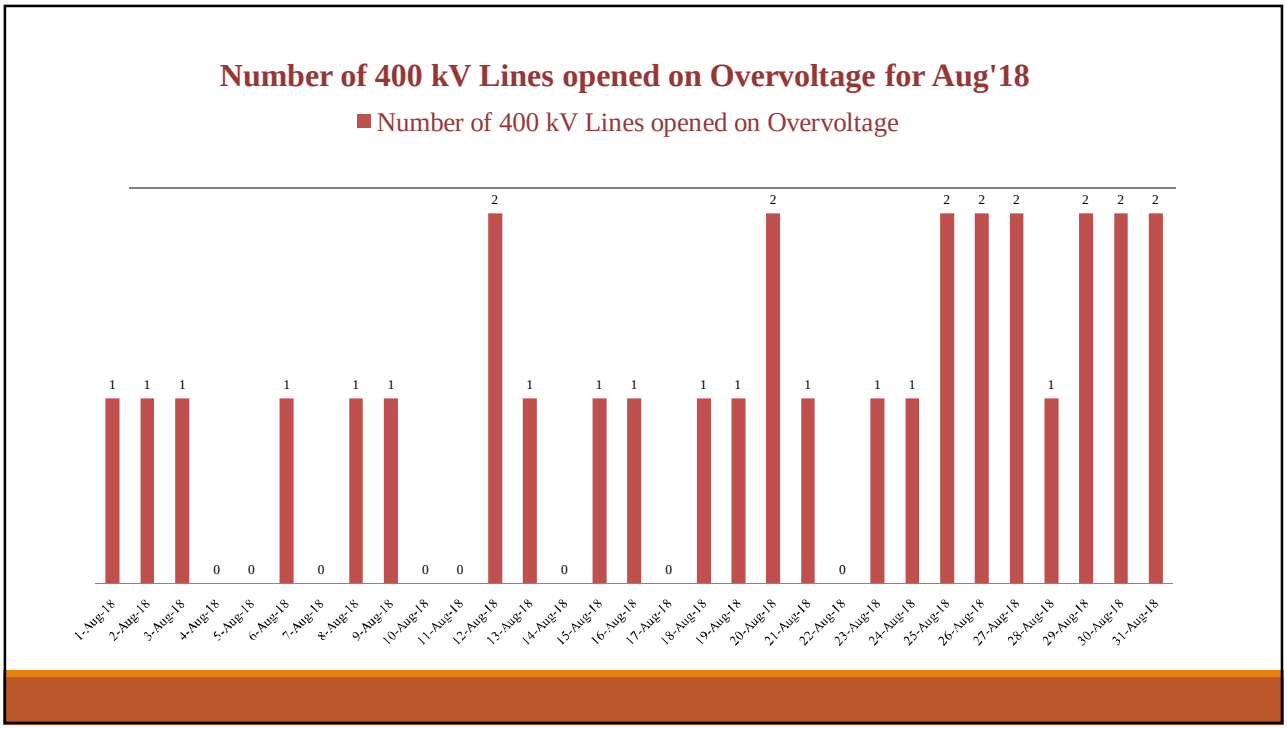
Reservoir level and current DC (in MU)

Plants	Reservoir Level in meters (as on 11/09/18)	MU Content	Present DC (MU)	No of days as per current Reservoir level and DC
Khandong + Kopili STG II	719.2	24.67	0.960+0.50400 1.464	17
Kopili	609.38	(98.2+ 4x24.67) 196.88	4.584	43
Doyang	322.65	30	1.692	18
Loktak	768.77	250	2.457	102

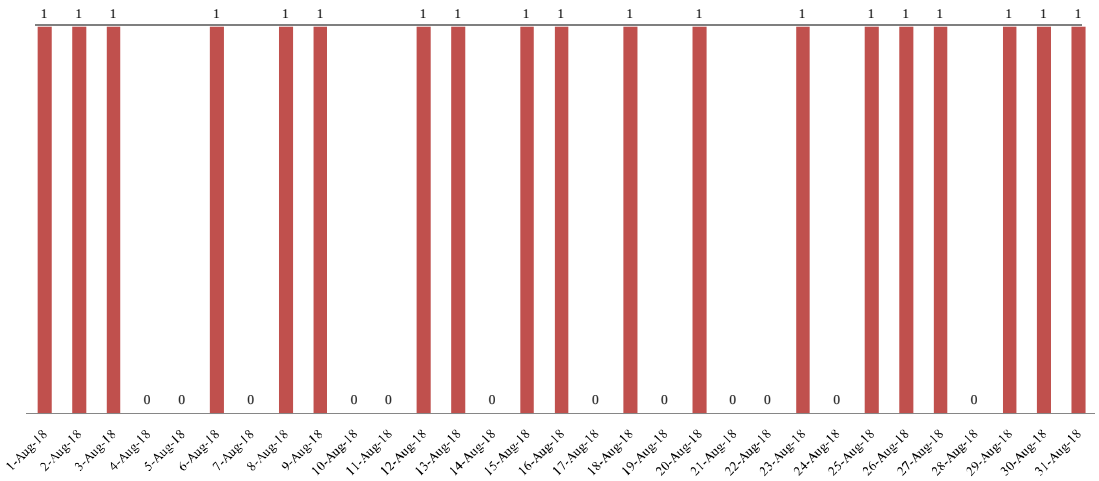
आवृत्ति रूपरेखा
Frequency Profile



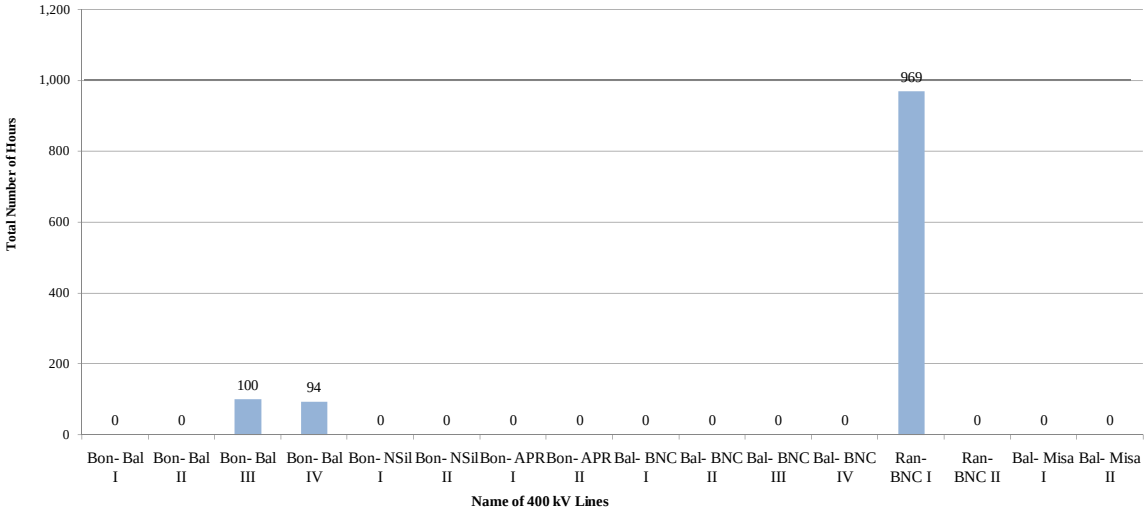

FREQUENCY GRAPH
50.30
50.20
50.10
50.00
49.90
49.80
49.70
49.60
49.50
49.40
49.30
FREQUENCY IN Hz
50.20Hz
49.62Hz
Max
Avg
Min
01 August 2018
02 August 2018
03 August 2018
04 August 2018
05 August 2018
06 August 2018
07 August 2018
08 August 2018
09 August 2018
10 August 2018
11 August 2018
12 August 2018
13 August 2018
14 August 2018
15 August 2018
16 August 2018
17 August 2018
18 August 2018
19 August 2018
20 August 2018
21 August 2018
22 August 2018
23 August 2018
24 August 2018
25 August 2018
26 August 2018
27 August 2018
28 August 2018
29 August 2018
30 August 2018
31 August 2018
DATES


Number of 400 kV Lines opened on Overvoltage for Aug'18
Number of 400 kV Lines opened on Overvoltage
1 1 1 0 0 1 0 1 1 0 0 2 1 0 1 1 0 1 1 2 1 0 1 1 2 2 2 1 2 2 2
1-Aug-18
2-Aug-18
3-Aug-18
4-Aug-18
5-Aug-18
6-Aug-18
7-Aug-18
8-Aug-18
9-Aug-18
10-Aug-18
11-Aug-18
12-Aug-18
13-Aug-18
14-Aug-18
15-Aug-18
16-Aug-18
17-Aug-18
18-Aug-18
19-Aug-18
20-Aug-18
21-Aug-18
22-Aug-18
23-Aug-18
24-Aug-18
25-Aug-18
26-Aug-18
27-Aug-18
28-Aug-18
29-Aug-18
30-Aug-18
31-Aug-18

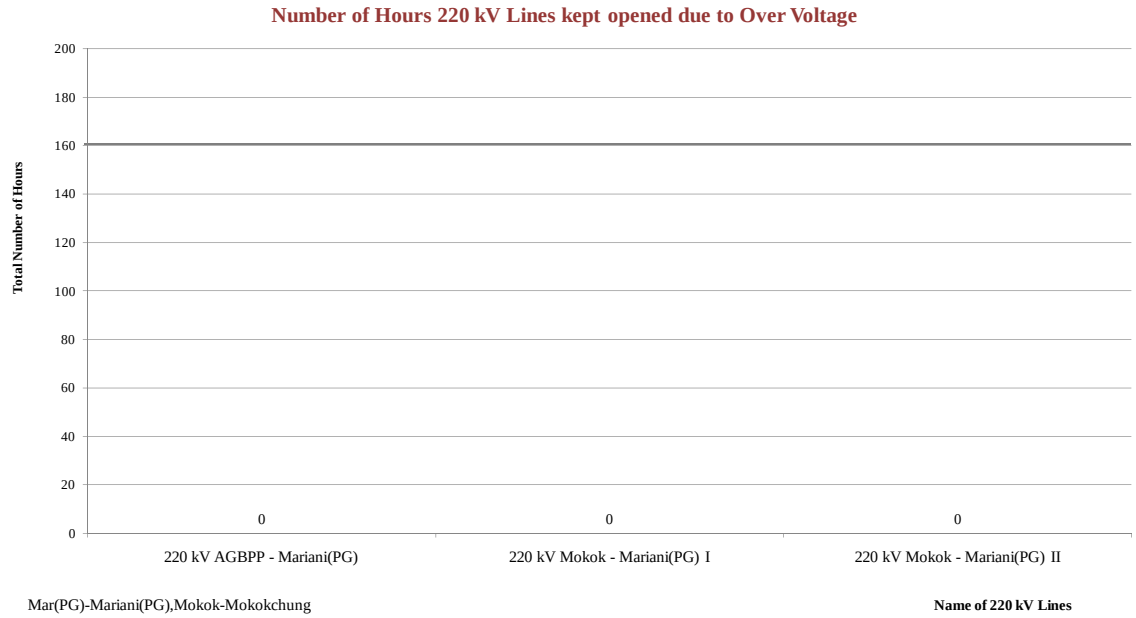
Maximum No. Lines Opened in a Day due to Over Voltage



Number of Hours 400 kV Lines kept opened due to Over Voltage during Aug'18



Bon-Bongaigaon,Bal-Balipara,Ran-Ranganadi,BNC-Biswanath Charali,APR-Alipurduar, NSil- NewSilliguri



FDI for the month of August

Sl no.	KPI	Aug'17	Aug'18
1	FDI	0.23	0.196

VDI for the month of August

Sl. no.	Name of 400 kV Node	Aug'17	Aug'18
1	Azara (AEGCL)	0.000	0.000
2	Balipara (PG)	0.031	0.001
3	BgTPP (NTPC)	0.037	0.000
4	Biswanath Chariali (PG)	0.003	0.001
5	Bongaigaon (PG)	0.000	0.000
6	Byrnihat (MePTCL)	0.048	0.000
7	Misa (PG)	0.086	0.004
8	Palatana (OTPC)	0.094	0.002
9	Ranganadi (NEEPCO)	0.106	0.015
10	Silchar (PG)	0.007	0.000

SRI for the month of August'18			
Sl. no.		Aug'17	Aug'18
1	ER-NER Import TTC Violation	0.00%	0.00%
	NER-ER Export TTC Violation	0.00%	0.00%
2	ER-NER Import ATC Violation	0.00%	0.00%
	NER-ER Export ATC Violation	0.00%	0.00%
3	400 kV Bongaigaon wrt Balipara (Max angular diff between buses)	18.9	14.6
	400 kV Balipara wrt Misa (Max angular diff between buses)	16.0	11.0
	400 kV Binaguri wrt Bongaigaon (Max angular diff between buses)	7.0	16.8

GD & GI Count for August'18		
Sl. no.	Category of GD	Total Counts
1	GI 1	5
2	GI 2	2
3	GD 1	38
4	GD 2	0
5	GD 3	0
6	GD 4	0
7	GD 5	0

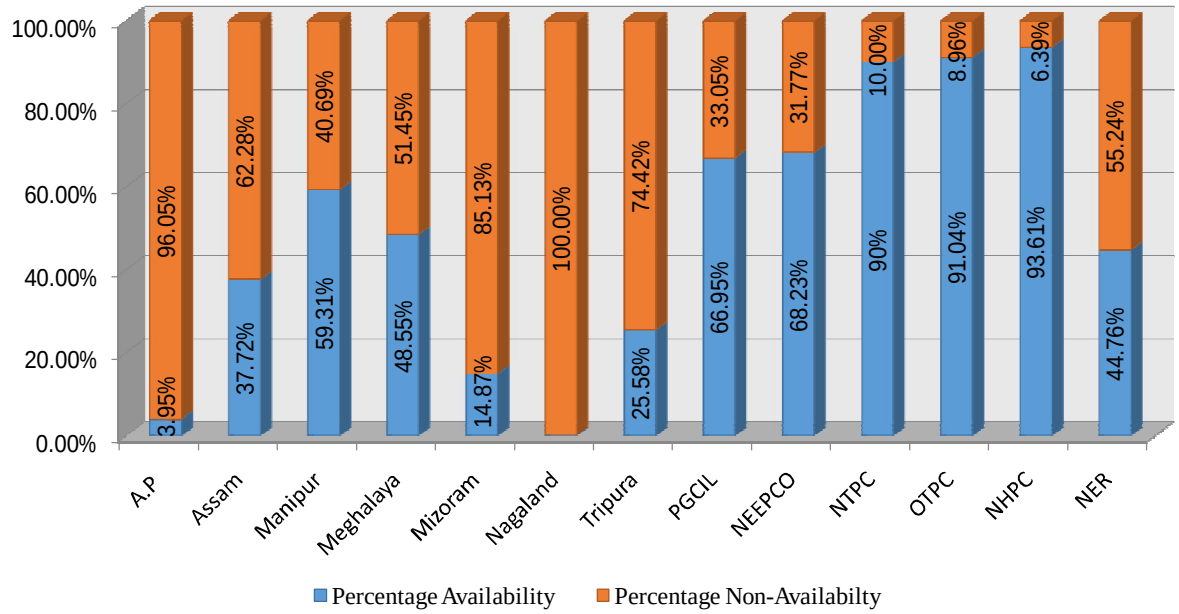
Details of Shutdown availed and applied on D-3 in the 147th OCCM approved. From 11.08.18 to 13.09.18

Total no. of SD approved	Nos. of SDs availed	Nos. of SDs not availed	Nos. of shutdown deferred by NERLDC	Nos. of SD availed on D-3 basis	Nos. of SD not availed on D-3 basis
100	83	10	7	84	16

Inordinate delay for shutdowns for the month Aug'18

Transmission Licensee	Total Delay (in HH:MM)	Avg. Delay (in HH:MM)	Max. Delay (in HH:MM)
POWERGRID	48.03	01:20	12:35 220kV Dimapur - Misa
NETC	01:15	01:15	01:15
ENICL	04:16	02:08	02:38

D.29: TELEMETRY STATISTICS AS ON 07/09/2018



Unit wise NER ISGS FRC calculation:

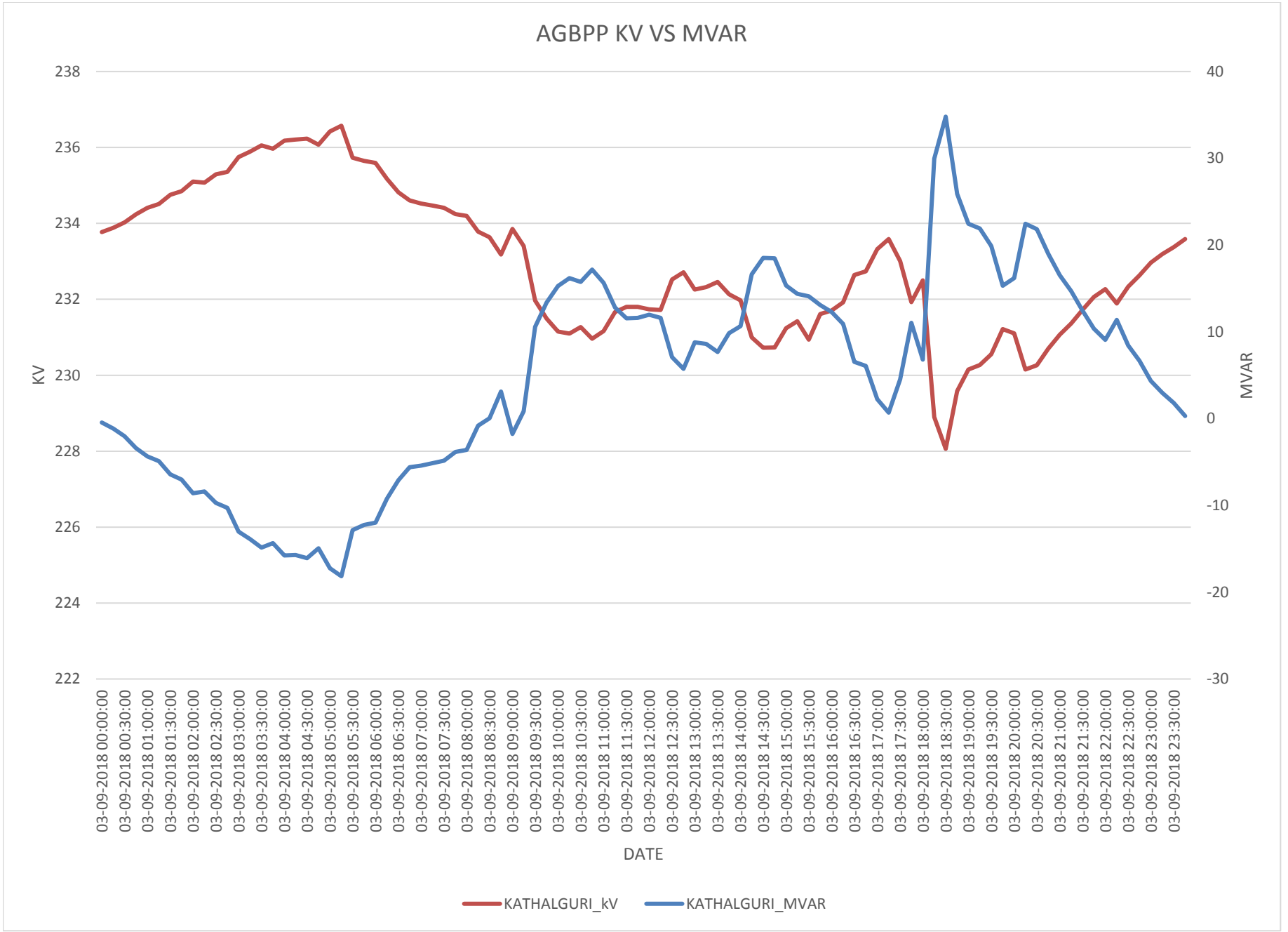
Event	On 12th Aug 2018, at 05:31 hrs 400 KV Rangpo – Binaguri II tripped on B-N phase fault, SPS –I operated and resulted into tripping of all running units of Teesta 3 (Except Unit one Unit) , one unit each of Jorethang, Tashiding, Chujachen and both unit of Dikchu (though it was supposed to trip only one unit). Generation loss at this point of time coming out to be 852 MW.
Date and Time of Event	12.08.18, 05:31 Hrs

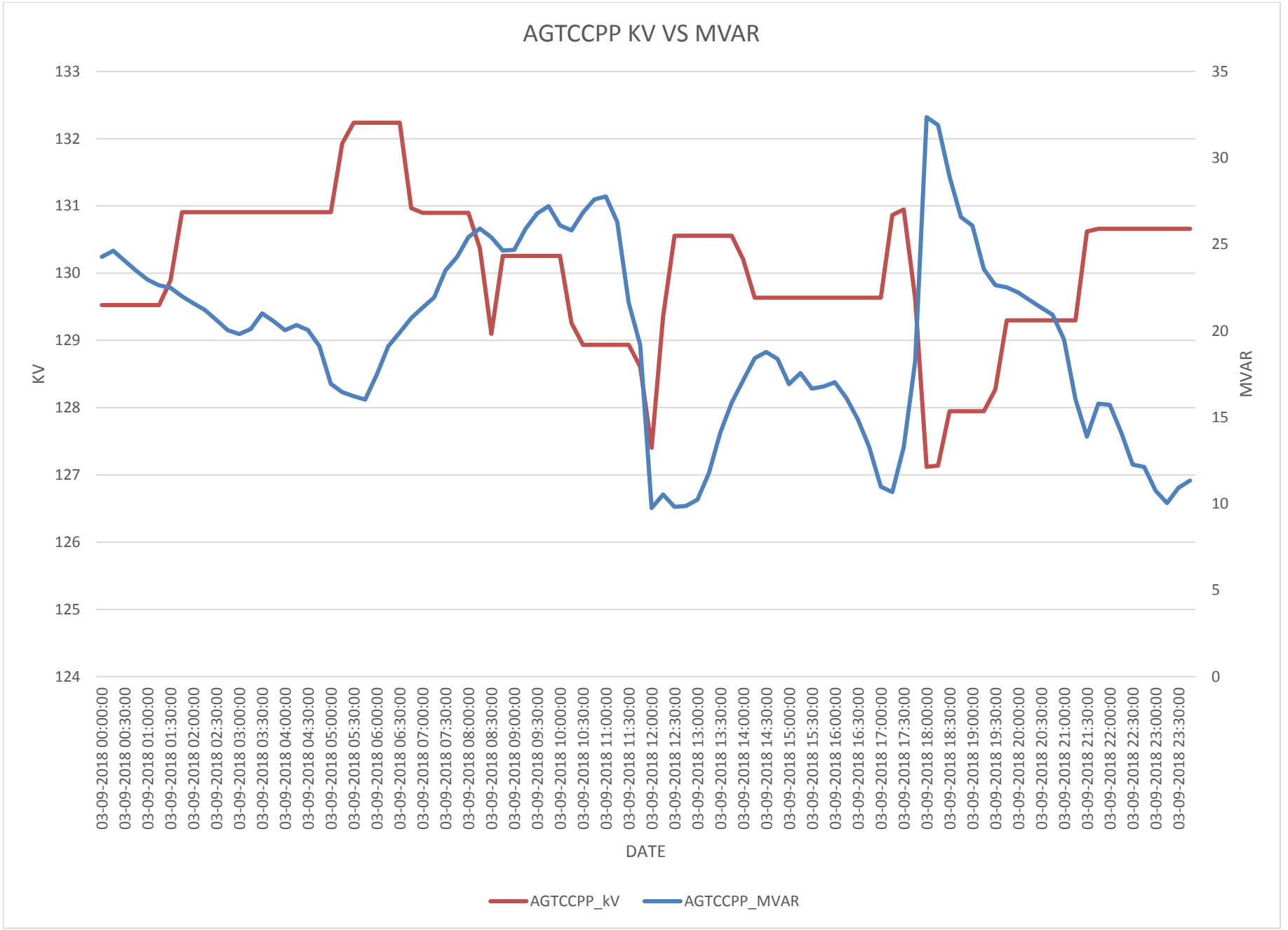
			NER ISGS GENERATION																					
Sl No.	Particulars	Dimension	Palatana		Khandong + stg II			Kopili				Doyang			RHEP			Loktak			BgTPP		Pare	
1	Unit no		Module I	Module II	I	II	III	I	II	III	IV	I	II	III	I	II	III	I	II	III	I	II	I	II
2	Installed Capacity	MW	2 x 363.3		2 x 25 +1 x 25			4 x 50				3 x 25			3 x 135			3 x 35			2 x 250		2 x 55	
3	Units on Bar (Yes/No)	MW	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No
4	Installed Capacity (MCR) of Units on Bar	MW	363.3	363.3	25.0	25.0	25.0	50.0	50.0	50.0	50.0	25.0	25.0	25.0		135.0		35.0	35.0	35.0	250.0		55.0	
5	Declared capacity (DC) (Total DC/Total unit)	MW	335.0	335.0	22.2	22.2	22.2	48.0	48.0	48.0	48.0	24.1	24.1	24.1		135.0		34.0	34.0	34.0	227.5		55.5	
6	105 % of MCR	MW	381.5	381.5	26.3	26.3	26.3	52.5	52.5	52.5	52.5	26.3	26.3	26.3		141.8		36.8	36.8	36.8	262.5		57.8	
7	Whether on ramping (Yes/No)		No	No	No	No	No	No	No	No	No	No	No	No		No		No	No	No	No		No	
8	Margin Available		65.3	52.6	2.5			6.3				2.3				30.9		1.8			91.6		3.0	
9	Actual Net Interchange before the Event (05:31:00)	MW	316.2	328.9	23.8	23.0	21.4	46.2	50.4	49.6	47.4	24.0	23.9	24.5		110.9		35.0	35.1	35.1	170.9		54.8	
10	Actual Net Interchange after the Event (05:31:50)	MW	320.3	328.6	23.8	23.0	21.3	46.2	50.4	49.6	47.4	24.0	23.9	24.6		110.9		35.1	35.0	35.1	172.8		54.9	
11	Change in Net Interchange (10 - 9)	MW	4.1	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1		0.0		0.1	0.0	0.0	1.9		0.1	
12	Generation Loss (+) / Load Throw off (-) during the Event	MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0		0.0	
13	Control Area Response 12-11)	MW	-4.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1		0.0		-0.1	0.0	0.0	-1.9		-0.1	
14	Frequency before the Event	HZ	50.04	50.04	50.04	50.04	50.04	50.04	50.04	50.04	50.04	50.04	50.04	50.04		50.04		50.04	50.04	50.04	50.04		50.04	
15	Frequency after the Event	HZ	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00		50.00		50.00	50.00	50.00	50.00		50.00	
16	Change in Frequency (15-14)	HZ	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04		-0.04		-0.04	-0.04	-0.04	-0.04		-0.04	
17	Frequency Response Characteristic (13 / 16)	MW/HZ	102.3	-6.0	-0.3	0.3	-0.5	-1.0	0.2	1.2	0.2	1.5	1.3	2.0		0.0		2.3	-1.2	0.0	48.3		1.8	
18	Net System Demand met before the Event	MW	0	0	0.0	0.0	0.0	0	0	0	0	0	0	0		0		0	0	0	0		0	
19	Internal Generation before the Event (9)	MW	316	329	23.8	23.0	21.4	46	50	50	47	24	24	24		111		35	35	35	171		55	
20	Ideal load response assuming 4% per Hz (0.04*Row 18)	MW/Hz	0	0	0.0	0.0	0.0	0	0	0	0	0	0	0		0		0	0	0	0		0	
21	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 19)	MW/Hz	126.5	131.6	9.5	9.2	8.5	18.5	20.2	19.8	19.0	9.6	9.5	9.8		44.4		14.0	14.0	14.1	68.4		21.9	
22	Composite ideal response (20 + 21)	MW/Hz	126.5	131.6	9.5	9.2	8.5	18.5	20.2	19.8	19.0	9.6	9.5	9.8		44.4		14.0	14.0	14.1	68.4		21.9	
23	Percentage ideal response (17/22)	%	80.9%	-4.6%	-2.6%	2.7%	-5.9%	-5.4%	1.2%	6.3%	1.3%	15.6%	13.1%	20.4%		0.0%		16.1%	-8.9%	0.0%	70.6%		8.0%	
24	Ideal generator response assuming 5% droop.....40% of 0.04 Hz (40% of Row 19)	MW/0.04 Hz	5.06	5.26	0.38	0.37	0.34	0.74	0.81	0.79	0.76	0.38	0.38	0.39	0.00	1.77	0.00	0.56	0.56	0.56	2.73	0.00	0.88	0.00
	Change in Net Interchange (10 - 9)	MW	4.1	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1		0.0		0.1	0.0	0.0	1.9		0.1	

Data is suspect

NER ISGS AGBPP and AGTCCPP is not applicable in FGMO/RGMO as unit wise IC is less than 50 MW.

Thank You


AGBPP KV VS MVAR
KV
MVAR
DATE
KATHALGURI_kV
KATHALGURI_MVAR


AGTCCPP KV VS MVAR
KV
MVAR
DATE
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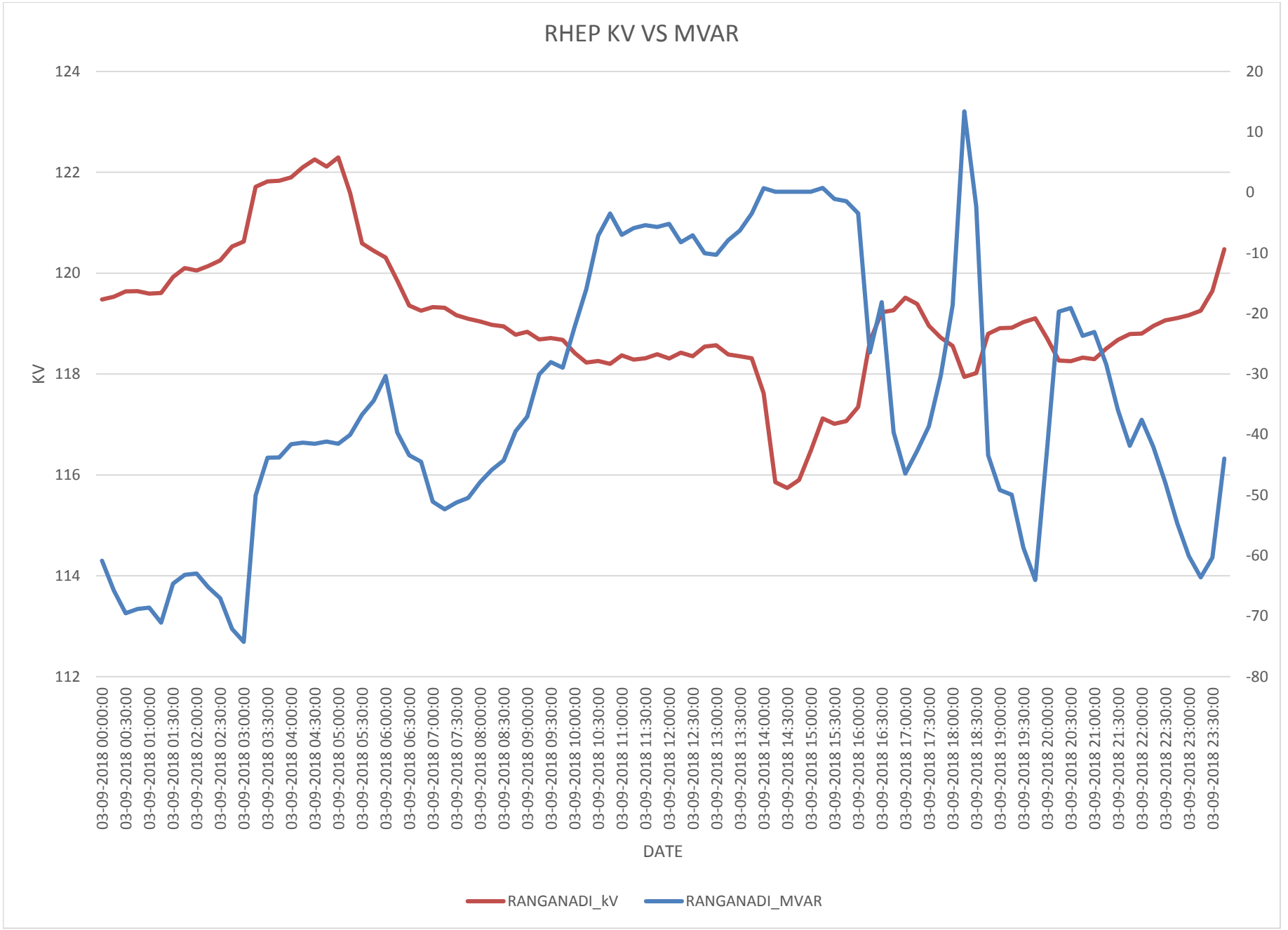
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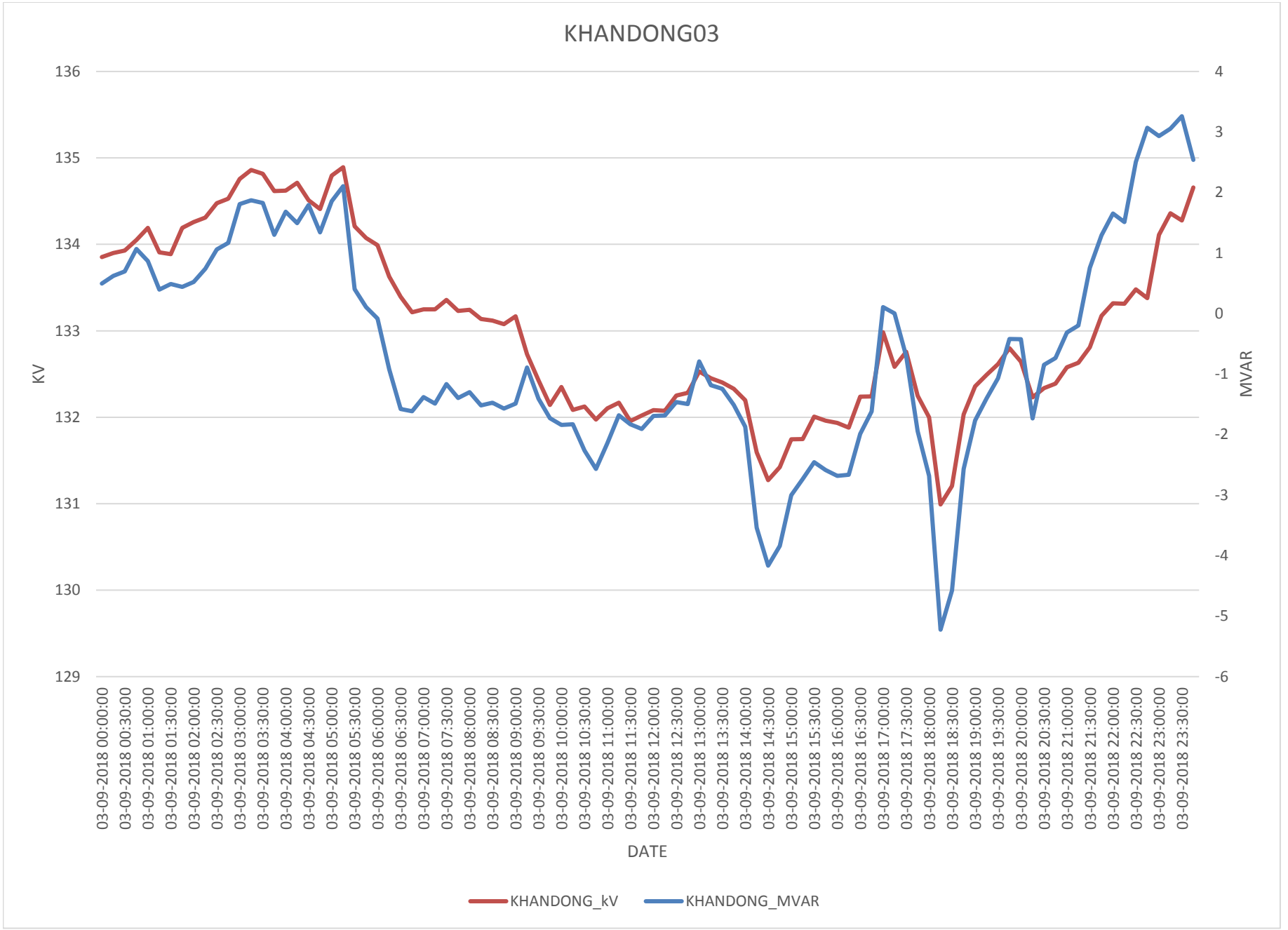
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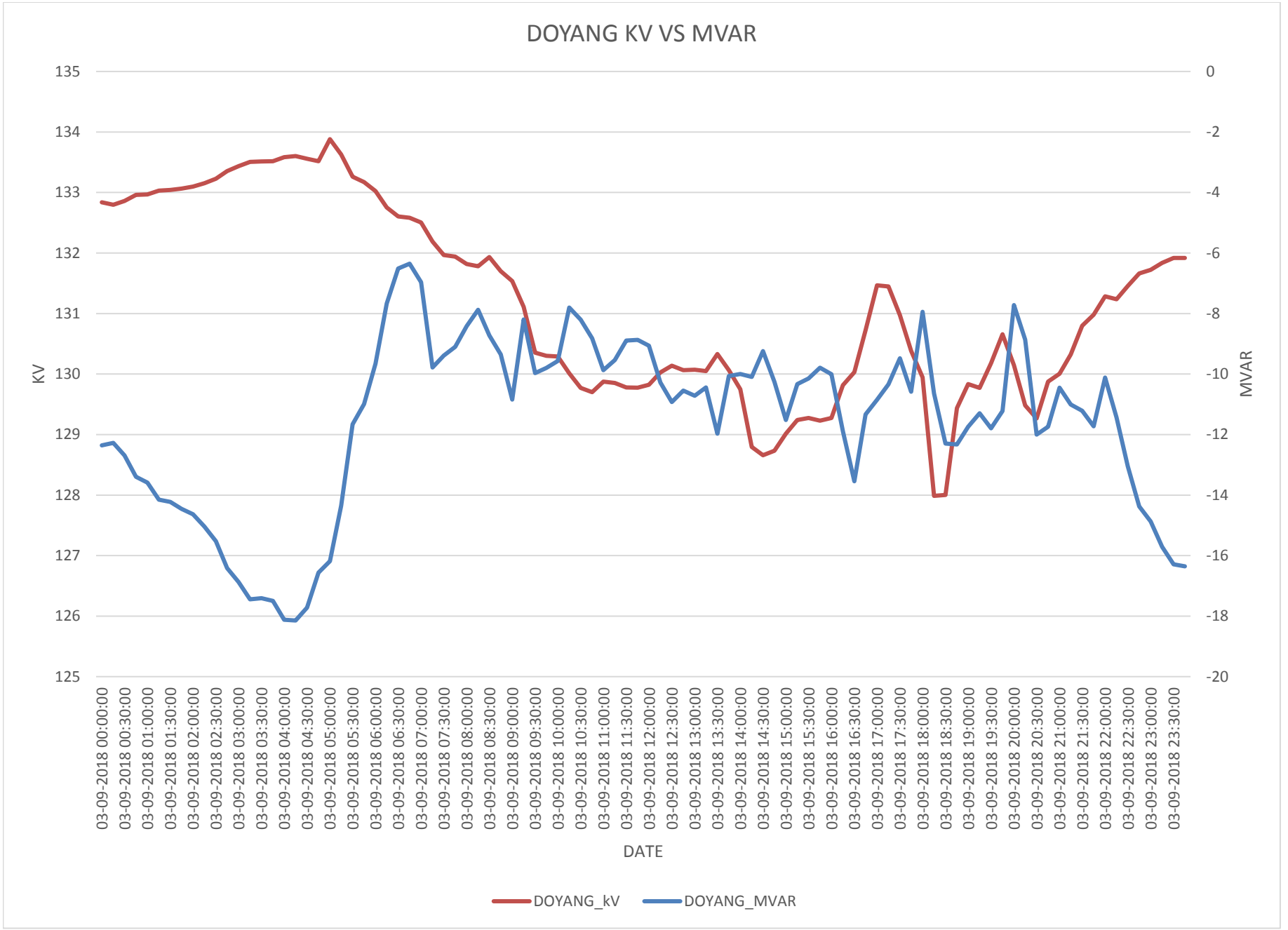
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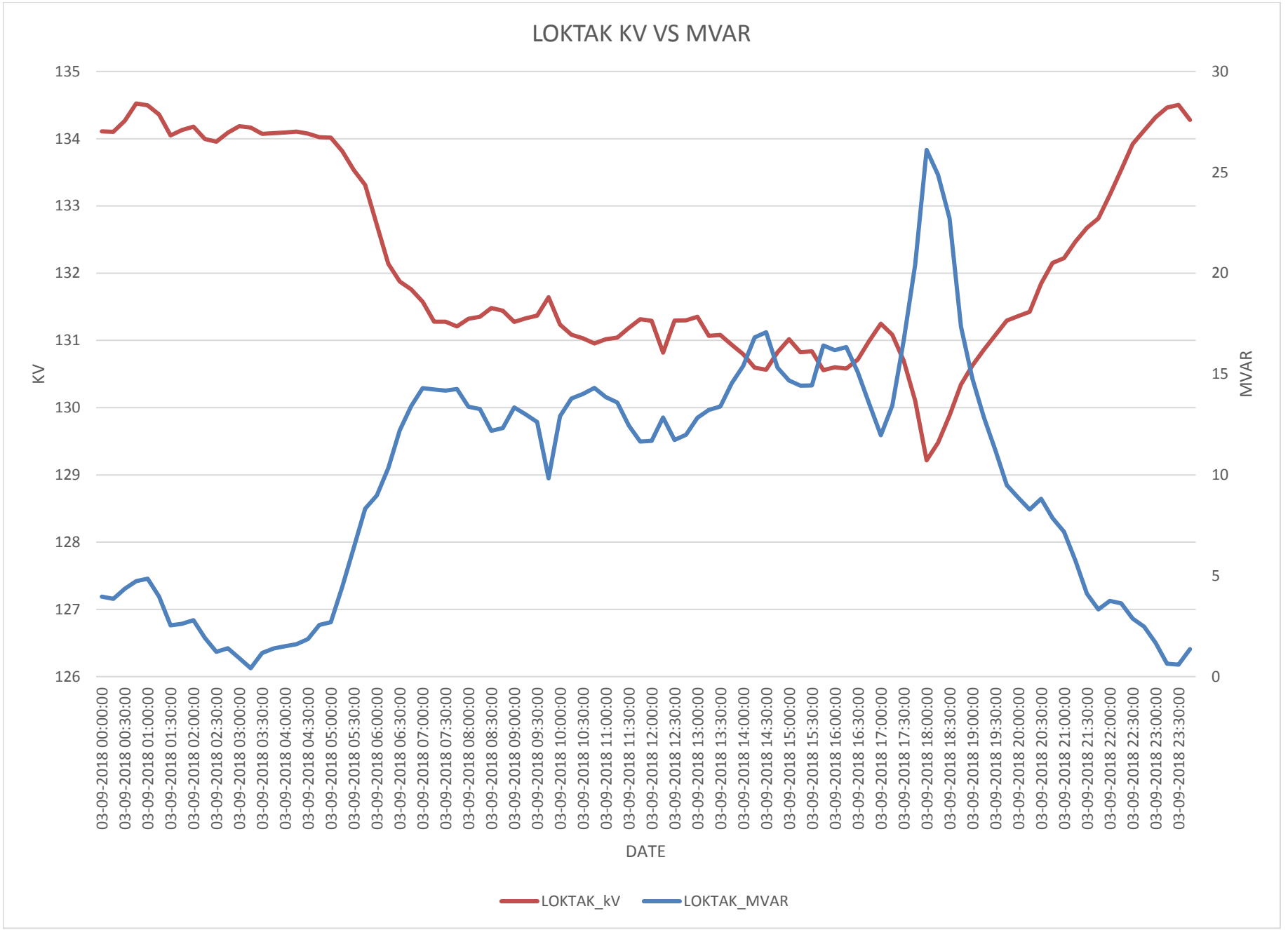
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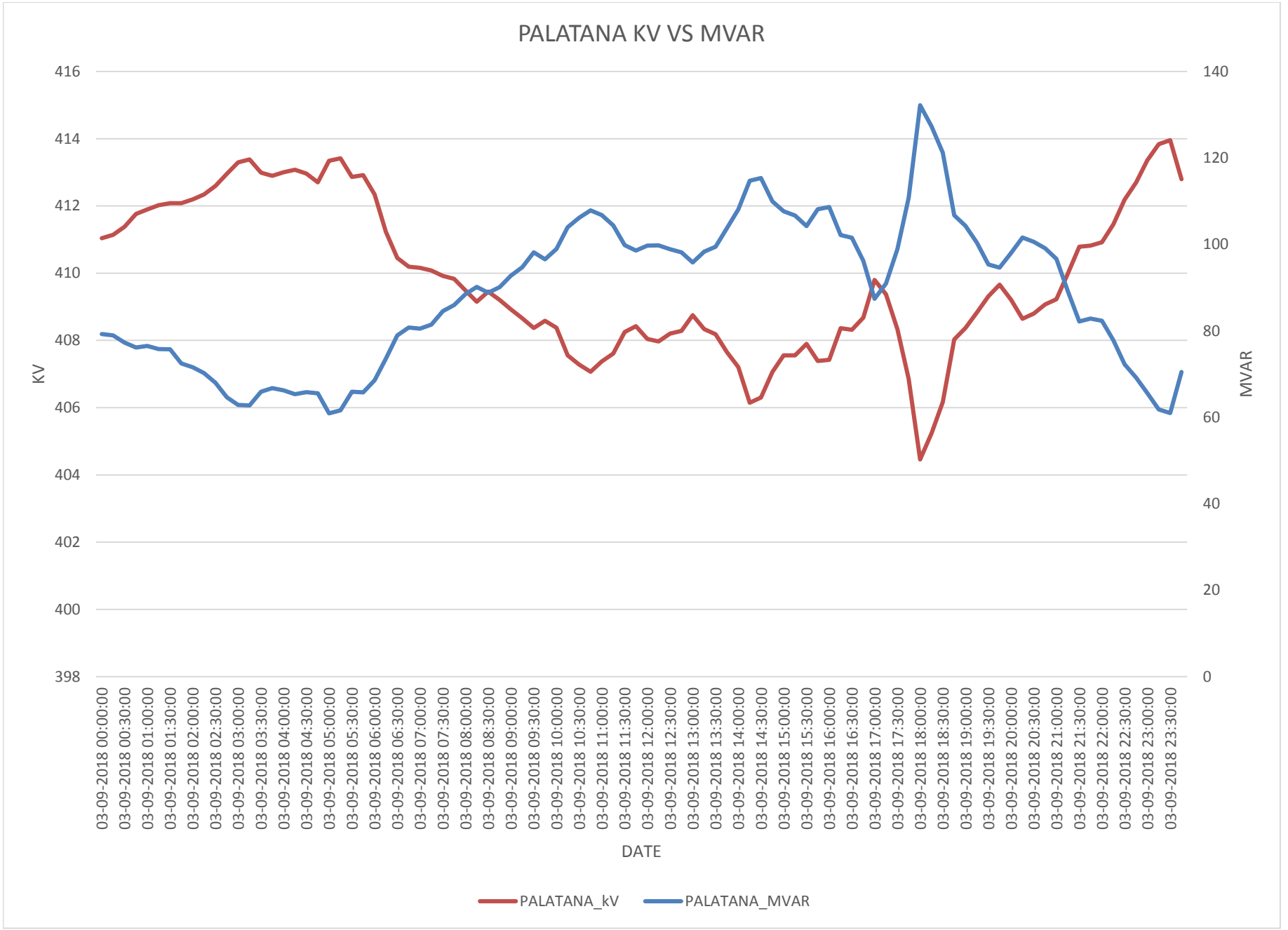
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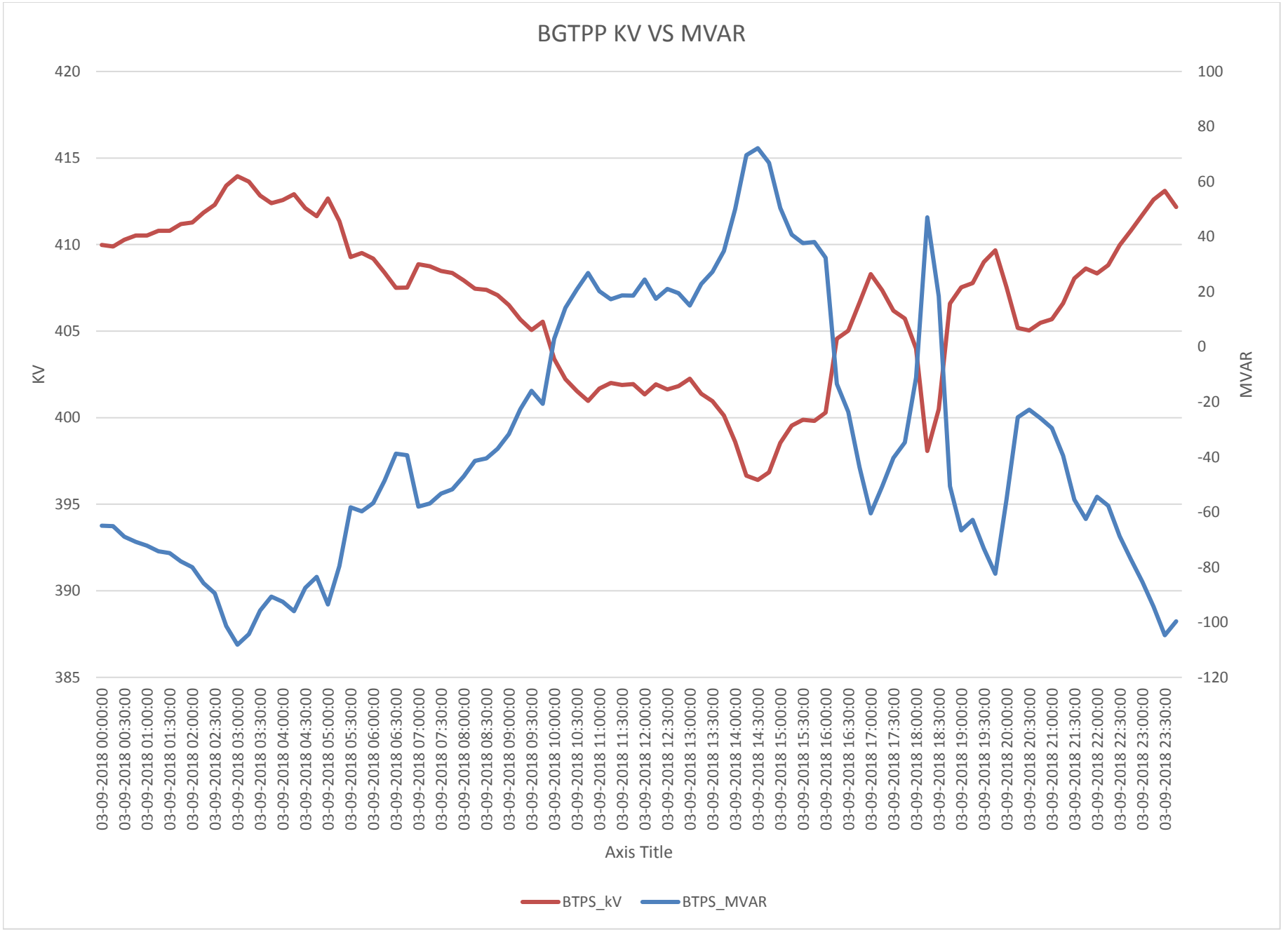
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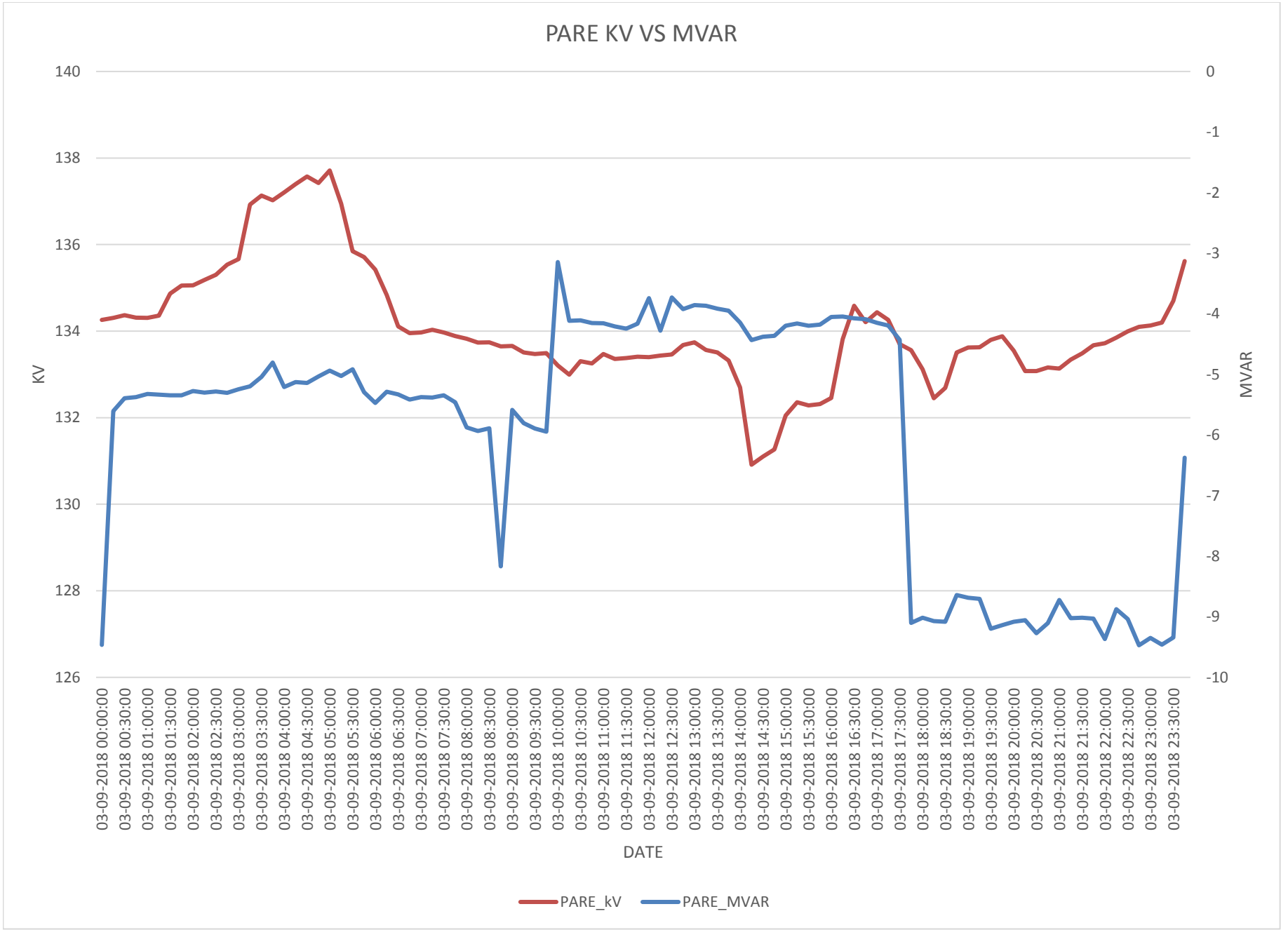
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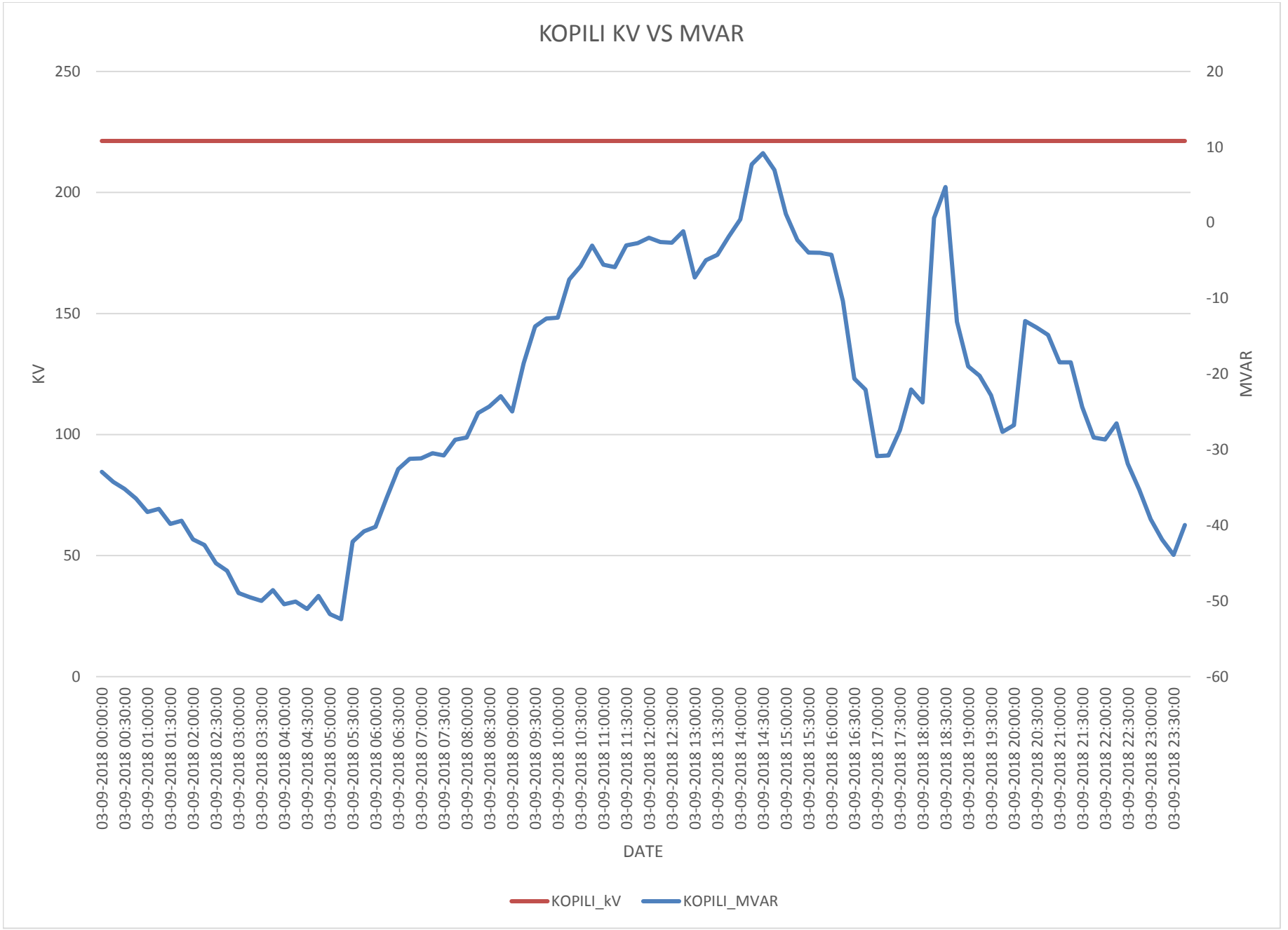
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Annexure-C.3

No. 23/21/2018-R&R
Government of India
Ministry of Power
***

Shram Shakti Bhawan, Rafi Marg,
New Delhi, 30th August, 2018

To
1. Chairperson, Central Electricity Authority, New Delhi.
2. Secretary, CERC, New Delhi.
3. Pr. Secretary/Secretary (Energy/Power), State Governments.
4. Secretary, All SERCs/JERCs.
5. Chairman/CMDs for all PSUs under administrative control of Ministry of Power.
6. DG, Association of Power Producers, New Delhi.

Subject: Scheme on 'Flexibility in Generation and Scheduling of Thermal Power Stations to reduce the cost of power to the consumer' – regarding.

Sir,

I am directed to enclosed herewith a copy of the Scheme on 'Flexibility in Generation and Scheduling of Thermal Power Stations to reduce the cost of power to the consumer' for information and necessary action.

2. This issues with the approval of MoS(IC) for Power and NRE.

Yours faithfully,

Sandeep 30/8/18

(Sandeep Naik)
Director
Tel: 2371 5250

Encl: As above

Copy for information to:
i) All Joint Secretaries/Economic Adviser, Ministry of Power.
ii) PS to MoS(IC) for Power and NRE, PPS to Secretary (Power), PPS to AS(R&R), PS to CE(R&R), PS to Dir(R&R).
iii) Incharge, NIC, Ministry of Power with the request to upload on the website of Ministry of Power under 'Current Notices'.

Flexibility in Generation and Scheduling of Thermal Power Stations to reduce the cost of power to the consumer

A. Background

The Government of India has taken various policy initiatives in order to reduce the cost of generation. In the year 2016, Government had allowed "*flexibility in utilization of domestic coal by States*". Earlier, each power plant owned by a company signed Fuel Supply Agreements (FSA) for supply of coal from a specified coal mine. The policy for flexible utilization of coal allowed a company to use coal within its basket in the most optimal manner such that unnecessary coal transportation is avoided and the benefits of lower costs of power generation could be passed on to the beneficiary states.

Thereafter, on 05.04.2018, Government had issued scheme for "Flexibility in Generation and Scheduling of Thermal Power Stations to reduce emission" wherein flexibility has been given to generating company to supply Renewable power against schedule received for thermal power. The Scheme envisages sharing of benefits, if any arising out of the scheme, between the generators and beneficiaries in 50:50 ratio.

In a similar manner, in order to reduce the overall cost of generation of a generating company, flexibility needs to be given to generating company to supply power from any of its generating station against schedule received for its stations and gains realized in the process could be shared with beneficiaries.

B. Need for Allowing Flexibility in Generation for cost optimization

(i) Optimization in scheduling of generation to reduce overall cost of power at national level

The objective of One Nation, One Grid, One Frequency has been achieved and on most of days there is One Price in the electricity Exchange. The Electricity Grid has evolved from local grid to State level grid and then to Regional Grid and finally National

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synchronous electricity Grid. The Indian Electricity Grid is also connected to other countries (Bhutan, Nepal and Bangladesh) to gain international character. Accordingly, with the constraint free robust transmission grid in place, time has come to move ahead from regional level scheduling to National level optimization in scheduling of generation.

At present the Discoms/ States tie-up for supply of power from various power stations/ generating companies. States generally requisition power from a station on day ahead basis considering its merit order among all the stations from which it has power tie-up. However, on a national level, it is seen that many stations having low Energy Charge Rate (ECR) are not fully scheduled whereas the costlier stations are scheduled at the same time. The needy beneficiaries are not able to schedule power from stations having lower ECR as they do not have power allocation/ Power Purchase Agreement (PPA) in these stations. They have no other option but to schedule the costlier power available in their basket. Therefore, cheaper power of a station in a region remains unutilized whereas at the same time costlier power of a station in another region is dispatched which results in increased average cost of power for the country.

In order to maximize utilization of cheaper power, flexibility needs to be given to the generating company to supply the power requisitioned by beneficiaries / States through Merit Order operation of its stations on national level, that is, cheaper station of the generating company shall be dispatched up to its maximum capability before scheduling costlier stations till the total power requisitioned by all its beneficiaries is met.

(ii) Optimum utilization of the railway infrastructure for transportation of coal to power station

Generally, the cheaper power is available at the pit head power stations or power stations located nearer to the mines. In both cases, the coal transportation coat is less resulting in the cheaper power. The turnaround of railway rakes is faster and reliability of coal supply to such power stations is also better. As per CEA, normative requirement of coal stock in the pithead power stations or the stations located nearer to the mines are less thus requiring less inventory cost. Government has already decided that coal

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transportation for the plants located within 20 km from the mines has to be done by closed conveyor belt (except the existing plants which has MGR) and plants located between 20 to 40 km from mines through MGR.

Thus, if national level optimization in scheduling of generation is done, there would be more generation from pit head stations resulting in less requirement of coal movement to far off power plants. Railways infrastructure which is constrained at the moment particularly for up country movement and at other locations, can be better utilized.

C. Benefits Envisaged

a) Optimal utilization of the available resources by running the generating stations supplying power at lesser tariff and reducing the overall average cost of generation.

b) Optimum utilization of the railway network due to optimum utilization of pit head stations and reduced generation from more expensive generating stations requiring transportation of coal over long distances.

c) Flexibility will enable higher loading of cheaper generating stations and at the same time reducing the loading of costlier stations resulting in improvement of overall operational efficiency as against the present efficiency level.

d) The energy accounting and billing shall remain the same as per extant regulations. The surplus generated shall be shared with the beneficiaries, thus the average cost of power to the beneficiaries shall reduce.

D. **Proposed Mechanism for allowing Flexibility in Generation for cost optimization**

a) Station-wise allocation to different beneficiaries as per the present system shall continue.

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b) Individual power station shall declare its Availability to Regional Load Despatch Centre (RLDC) as per existing practice. A replica to be maintained at the National Load Dispatch Centre (NLDC) for Inter-regional Scheduling (or National level scheduling).

c) RLDC/NLDC shall seek total requisition from all the beneficiaries against their total entitlement from different Stations of a Generating Company as per present system.

d) Based on the requisition received from the beneficiaries, RLDC/NLDC shall issue the Initial Schedule (**R-0)** for Generating Stations as is being done presently as per extant regulations. This Schedule or implemented Schedule, if revised subsequently shall be used for raising bills by the generating company.

e) Based on the total power requisitioned by various beneficiaries of the generating company, RLDC/NLDC shall schedule the stations of the generating company, subject to transmission constraints, as per Merit Order of the generating company such that the station of that generating company having least ECR shall be first utilized fully (i.e. up to its Declared Capacity) followed by the next station with next higher ECR which shall be dispatched to the maximum and so on till the entire schedule of all beneficiaries is met by the generating company.

f) RLDC/NLDC shall complete such Merit Order operation based Generation Bucket Filling (**GBF**) scheduling subject to any constraint arising due to transmission / other Grid security.

g) Thereafter, RLDC/NLDC shall issue the actual dispatch schedule (**GBF-0**) for the generating stations. It is possible that the schedule of some Stations may be lowered to technical minimum level and few others may be put in Reserve Shut Down. In case the last generating station's schedule is less than the technical minimum level, the schedule of last but one generating station in the merit order may be reduced to an extent so that the last station gets scheduled to the technical minimum.

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h) Stations of a Generating Company shall be required to generate as per such finalized **GBF-0** Schedule, or its subsequent revisions.

i) The generating stations and beneficiaries will be free to revise their availability and requisition respectively in real time as per present practice. The revision made by the generating stations or the beneficiary shall be reflected in the revision of GBF, for which suitable provision for gate closure may be provided by the Appropriate Commission.

j) The surplus realized, if any, from supply of power from station having lower ECR in place of costlier thermal power not scheduled and billed due to national merit order operation of its stations by a generating company shall be shared with the beneficiaries in the ratio of 50 (beneficiaries) : 50 (generating company) on monthly basis with quarterly reconciliation. This ratio may be reviewed based on experience gained. The share of surplus which is to be passed on to the beneficiaries , if any, during the month shall be shared in proportion to the total drawl by the beneficiaries from the generating company. Accordingly, the monthly billing will be done by the generating company after taking into account of it and passed on to the beneficiaries. The Appropriate Commission shall ensure through a suitable mechanism that the share of surplus which is to be passed on to the beneficiaries has been appropriately passed on to the beneficiaries.

k) **Deviation Settlement Mechanism (DSM):** Stations shall be subjected to charges for deviations from Actual Dispatch schedule (**GBF-0, or its subsequent revision)** under DSM Regulations as per existing practice.

l) **Part-Load Compensation:** The Part-load compensation shall be billed based on the Actual Dispatch schedule (**GBF-0 or subsequent revisions).**

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m) **Incentive:** As incentive is payable by the beneficiaries of a station as per the energy scheduled by them, incentive would continue to be based on the **R-0** or **subsequent revisions** Schedule and as per extant Regulations.

E. Implementation of the Scheme

a) Changes, if any, required in the Regulations for the implementation of the above scheme shall be made by the Appropriate Electricity Regulatory Commission, including regulatory provisions for maintaining adequate spinning reserve and payment mechanism thereof.

b) National Merit Order Despatch shall bring out benefits as envisaged above, however there may be Operational and Commercial issues that may arise during implementation of scheme at national level for all Generating Companies i.e. Central, State and Private Generating Companies. This scheme shall be applicable to the Generating Companies having multiple Generating assets, whose tariff is being determined under Section 62 of the Electricity Act 2003.

c) Central Electricity Authority shall monitor the implementation of this scheme and resolve and review any issues arising during its implementation, in consultation with CERC. The status of implementation of the scheme and issues arising shall be sent by CEA to Ministry of Power on quarterly basis.

d) The scheme, if required, may be modified by Ministry of Power based on the operational feedback by the stakeholders and CEA.

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Annexure-D.6

CDAC SCHEME IN NER

SL NO	LOCATION	TOTAL SIM TO BE PURCHASED	TO BE PURCHASED IN FUTURE
1	ARUNACHAL PRADESH	7	4
2	ASSAM	35	15
3	MANIPUR	10	7
4	MEGHALAYA	6	0
5	MIZORAM	6	1
6	NAGALAND	7	2
7	TRIPURA	8	6
	TOTAL	79	35

SL NO	FEEDER NAME	STATUS	METER TO BE REPLACED/INSTALLED BY PGCIL
1	SRIKONA END OF 132kV SILCHAR FDR -1	REPLACE	1
2	SRIKONA END OF 132kV SILCHAR FDR -2	REPLACE	1
3	DEOMALI END OF 220 KV KATHALGURI FEEDER	REPLACE	1
4	PK'BARI -1 END OF 132 KV SILCHAR-1	REPLACE	1
5	PK'BARI -1 END OF 132 KV SILCHAR-2	REPLACE	1
6	PAVOI END OF 132 KV BNC-1	REPLACE	1
7	MOKOK(S) END OF DOYANG	REPLACE	1
8	MOKOK(S) END OF MOKOK-MOKOK-1	REPLACE	1
9	MOKOK(S) END OF MOKOK-MOKOK-2	REPLACE	1
10	KHUPI END OF 132 KV BALIPARA	INSTALL	1
11	LEKHI END OF 132 KV PARE	INSTALL	1
12	KHUPI END OF 132 KV KAMENG	INSTALL	1
13	ZUANGTUI END OF MELRIAT	INSTALL	1
14	LUANGMOL END OF AIZAWL	INSTALL	1

Apr-18

Annexure-D.22

POWERGRID

SL-No	Name Of The Line	Outage date	Outage Time	End Date	End Date
1	220 kV BTPS - Salakati 1	5-Apr-18	14:24:00	5-Apr-18	14:45:00
2	220 kV BTPS - Salakati 2	5-Apr-18	14:24:00	5-Apr-18	14:45:00
3	132 kV Khandong - Khliehriat 1	7-Apr-18	14:46:00	7-Apr-18	14:53:00
4	132 kV Khandong - Khliehriat 1	7-Apr-18	15:24:00	7-Apr-18	15:28:00
5	132 kV Khandong - Khliehriat 1	9-Apr-18	11:38:00	9-Apr-18	11:45:00
6	132 kV Khandong - Khliehriat 1	9-Apr-18	11:59:00	9-Apr-18	12:35:00
7	220 kV Kopili - Misa 3	10-Apr-18	3:45:00	10-Apr-18	4:03:00
8	220 kV Kopili - Misa 3	10-Apr-18	2:15:00	10-Apr-18	2:27:00
9	132 kV Lekhi - Ranganadi	14-Apr-18	1:51:00	14-Apr-18	2:24:00
10	132 kV Gohpur - Nirjuli	14-Apr-18	1:55:00	14-Apr-18	8:30:00
11	132 kV Melriat - Zungtui	16-Apr-18	10:05:00	16-Apr-18	10:30:00
12	132 kV Khandong - Khliehriat 2	17-Apr-18	12:25:00	17-Apr-18	12:33:00
13	132 kV Khandong - Khliehriat 1	17-Apr-18	13:44:00	17-Apr-18	13:50:00
14	132 kV Badarpur - Kolasib	19-Apr-18	2:01:00	19-Apr-18	2:16:00
15	132 kV Badarpur - Kolasib	19-Apr-18	3:16:00	19-Apr-18	3:22:00
16	132 kV Badarpur - Kolasib	19-Apr-18	19:36:00	19-Apr-18	19:44:00
17	132 kV Khliehriat (MePTCL) - Khliehriat (PG) 2	20-Apr-18	12:10:00	20-Apr-18	12:59:00
18	132 kV Badarpur - Kolasib	21-Apr-18	1:16:00	21-Apr-18	2:10:00
19	132 kV Lekhi - Ranganadi	25-Apr-18	17:30:00	25-Apr-18	17:42:00
20	132 kV Lekhi - Ranganadi	25-Apr-18	18:36:00	25-Apr-18	18:55:00
21	132 kV Badarpur - Kolasib	29-Apr-18	1:33:00	29-Apr-18	2:11:00
22	132 kV Badarpur - Kumarghat	29-Apr-18	8:50:00	29-Apr-18	8:55:00
23	132 kV Palatana - Surajmaninagar	30-Apr-18	12:20:00	30-Apr-18	12:55:00

May'18

POWERGRID

Event ID	Name of tripping element (End A - End B)	Date & Time of Event	Date & Time of Restoration
1	132 kV Dimapur (PG) - Kohima (DoP, Nagaland) Line	02-05-2018 14:24:00	02-05-2018 18:43:00
2	132 kV Melriat - Zuangtui Line	5/9/2018 13:25	5/9/2018 13:42
3	132 kV Agartala - AGTCCPP 2 Line	09-05-2018 17:02:00	09-05-2018 17:39:00
4	132 kV Ranganadi - Pare Line	11-05-2018 11:09:00	11-05-2018 11:26:00
5	132 kV Ranganadi - Pare Line	11-05-2018 13:04:00	11-05-2018 13:26:00
6	132 kV Dimapur (PG) - Kohima (DoP, Nagaland) Line	15-05-2018 16:24:00	15-05-2018 16:40:00
7	132 kV Pasighat - Roing Line	16-05-2018 13:17:00	17-05-2018 13:54:00
8	132 kV Khandong - Khliehriat 1 Line	21-05-2018 15:31:00	21-05-2018 15:59:00
9	132 kV Khandong - Kopili 1 Line	21-05-2018 15:31:00	21-05-2018 15:49:00
10	400/220 kV, 315 MVA ICT I at Misa	21-05-2018 15:31:00	21-05-2018 16:08:00
11	400/220 kV, 315 MVA ICT II at Misa	21-05-2018 15:31:00	21-05-2018 18:10:00
12	400/220 kV, 315 MVA ICT I at Misa	21-05-2018 16:34:00	21-05-2018 17:18:00
13	132 kV Dimapur (PG) - Kohima (DoP, Nagaland) Line	24-05-2018 13:48:00	24-05-2018 18:39:00
14	132 kV Dimapur (PG) - Kohima (DoP, Nagaland) Line	26-05-2018 12:26:00	26-05-2018 12:38:00
15	132 kV Badarpur - Kolasib Line	26-05-2018 17:24:00	26-05-2018 17:35:00

NETC

Event ID	Name of tripping element (End A - End B)	Date & Time of Event	Date & Time of Restoration
1	400 kV Palatana - Silchar 2 Line	12-05-2018 17:45:00	12-05-2018 18:33:00

Jun-18

POWERGRID

SL-No	Name Of The Line	Outage date	End Date
1	132 kV Imphal (Manipur) - Imphal (PG) 2 Line	03-06-2018 10:31:00	03-06-2018 10:53:00
2	132 kV Imphal (Manipur) - Imphal (PG) 1 Line	03-06-2018 10:31:00	03-06-2018 10:51:00
3	132 kV Biswanath Chariali - Pavoi 1 Line	04-06-2018 09:26:00	04-06-2018 09:55:00
4	132 kV Aizawl - Tipaimukh Line	06-06-2018 01:42:00	06/06/2018 02:30:00
5	132 kV Jiribam - Loktak 2 Line	06-06-2018 02:20:00	06-06-2018 03:14:00
6	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	06-06-2018 10:54:00	06-06-2018 11:47:00
7	132 kV Dimapur (PG) - Kohima 1 Line	09-06-2018 13:46:00	09-06-2018 13:51:00
8	132 kV Imphal (MSPCL) - Imphal (PG) 1 Line	14-06-2018 03:32:00	14-06-2018 04:13:00
9	132 kV Dimapur (PG) - Kohima Line	16-06-2018 11:25:00	16-06-2018 11:40:00
10	132 kV Palatana - Surajmaninagar 1 Line	18-06-2018 01:40:00	18-06-2018 02:50:00
11	132 kV P.K.Bari - Silchar 1 Line	18-06-2018 01:40:00	6/18/2018 2:34
12	132 kV P.K.Bari - Silchar 2 Line	18-06-2018 01:40:00	6/18/2018 2:18
13	220 kV Kopili - Misa 3 Line	18-06-2018 01:44:00	18-06-2018 06:20:00
14	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	18-06-2018 10:29:00	18-06-2018 10:42:00
15	132 kV Lekhi - Pare Line	22-06-2018 06:50:00	22-06-2018 19:10:00

Jun-18

POWERGRID

SL-No	Name Of The Line	Outage date	End Date
16	132 kV Dimapur (PG) - Kohima Line	23-06-2018 12:45:00	23-06-2018 13:06:00
17	132 kV Dimapur (PG) - Kohima Line	24-06-2018 12:10:00	24-06-2018 12:21:00
18	132 kV Dimapur (PG) - Kohima Line	24-06-2018 12:49:00	24-06-2018 12:58:00
19	400/132/33kV, ICT II at Silchar	25-06-2018 14:58:00	6/25/2018 15:15
20	132 kV Lekhi - Nirjuli 1 Line	25-06-2018 16:25:00	25-06-2018 18:40:00
21	132 kV Dimapur (PG) - Kohima 1 Line	26-06-2018 08:33:00	26-06-2018 08:50:00
22	132 kV Imphal (MSPCL) - Imphal (PG) 1 Line	26-06-2018 11:30:00	26-06-2018 11:53:00
23	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	29-06-2018 01:50:00	29-06-2018 02:18:00
24	132 kV Ranganadi - Ziro 1 Line	29-06-2018 18:40:00	29-06-2018 18:48:00

Jul-18

POWERGRID

SL-No	Name Of The Line	Outage date	End Date
1	132 kV Dimapur (PG) - Kohima Line	01-07-2018 12:54:00	01-07-2018 13:10:00
2	132 kV Dimapur (PG) - Kohima Line	05-07-2018 10:00:00	05-07-2018 15:10:00
3	132 kV Ranganadi - Pare 1 Line	07-07-2018 13:32:00	07-07-2018 13:54:00
4	132 kV Dimapur (PG) - Kohima Line	11-07-2018 11:26:00	11-07-2018 11:38:00
5	132 kV Imphal (MSPCL) - Imphal (PG) 1 Line	11-07-2018 10:55:00	11-07-2018 11:09:00
6	132 kV Imphal (MSPCL) - Imphal (PG) 2 Line	11-07-2018 10:55:00	11-07-2018 11:11:00
7	132 kV Lekhi - Pare Line	11-07-2018 14:25:00	11-07-2018 14:35:00
8	132 kV Lekhi - Pare Line	12-07-2018 14:07:00	12-07-2018 14:50:00
9	132 kV Dimapur - Doyang 2 Line	15-07-2018 04:35:00	15-07-2018 07:05:00
10	132 kV Lekhi - Pare Line	21-07-2018 00:53:00	21-07-2018 02:23:00
11	132 kV Dimapur - Kohima Line	31-07-2018 16:20:00	03-08-2018 14:56:00
12	132kV Aizawl - Melriat	7/20/2018 9:23	7/20/2018 11:28