भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
पूर्वी क्षेत्रीय विद्युत समिति
Eastern Regional Power Committee
14, गोल्फ क्लब रोड, टालीगंज, कोलकाता-700033
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NO. ERPC/EE/OPERATION/2023/1337 **DATE: 17.01.2023**

To

As per list enclosed.

Sub: Minutes of 198th OCC Meeting held on 22.12.2022 (Thursday) virtually through MS Teams Platform- reg.

Sir,

Please find enclosed minutes of 198th OCC Meeting held on 22.12.2022 virtually through MS Teams Platform for your kind information and necessary action. The same is also available at ERPC website (www.erpc.gov.in).

Observations, if any, may please be forwarded to this office at the earliest.

This issues with the approval of Member Secretary.

Regards,

Yours faithfully,

अलीक 17.1.23

(A. De)
EE(Opération)

LIST OF ADDRESSES:

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3. CHIEF ENGINEER, TRANSMISSION (O&M), JUSNL, RANCHI (FAX NO.-0651-2490486/2490863)
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CC:

Chief Engineer, OPM, CEA	Chief Engineer, NPC, CEA	ASSISTANT SECRETARY, ERPC

MINUTES

OF

198th OCC MEETING

Date: 22.12.2022

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700033

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 198TH OCC MEETING HELD ON 22.12.2022 (THURSDAY) AT 10:30 HRS

PART – A

ITEM NO. A.1: Confirmation of Minutes of 197th OCC Meeting held on 17th November 2022 through MS Teams online platform.

The minutes of 197th Operation Coordination sub-Committee meeting held on 17.11.2022 was circulated vide letter dated 20.12.2022.

Members may confirm the minutes of 197th OCC meeting.

Deliberation in the meeting

Members confirmed the minutes of 197th OCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Installation of Transmission Line Arrestor in 220kV Lines in North Bengal.

220kV D/C Siliguri-Kishanganj TL (erst 220kV D/C Siliguri-Dalkhola TL), 220kV D/C Birpara-Chukha TL, 220kV D/C Birpara-Alipurduar TL (erst 220kV D/C Birpara-Salakati TL) and 220kV S/C Birpara-Malbase TL were commissioned in the year 1986 under Chukha Transmission System.

All the above-mentioned lines are located in the Himalayan Foothills and encounter severe lightning incidents during the monsoon period starting from April-Oct. As stated by NASA, The Himalayan Foreland is declared as Principal Lightening Hotspot zone.

Due to lightening frequent de-capping/failure of installed Porcelain insulators were occurring in above mentioned lines. Subsequently in order to prevent repeated de-capping, in the year 2018 the earlier installed Porcelain insulators were replaced with Polymer Insulators. After replacement of Porcelain insulators there was a considerable reduction in Auto-reclosures and tripping incidents but still the tripping/AR rate is quite high. This season several instances of tripping/Auto-reclosures have occurred in those lines. This repeated Auto-reclosures/tripping is not only creating disturbance for the Grid but also putting stress on connected terminal equipment.

A year wise tripping & Auto-reclosure incidents in above mentioned lines w.e.f. 01.04.2017 till date are as per the following: -

220kV D/C Siliguri-Kishanganj TL (erst 220kV D/C Siliguri-Dalkhola TL):-

2017-18		2018-19		2019-20		2020-21		2021-22		2022-23	
AR	Trip	AR	Trip	AR	Trip	AR	Trip	AR	Trip	AR	Trip
1	4	0	1	0	1	7	1	7	1	15	3

220kV D/C Birpara-Chukha TL:-

2017-18		2018-19		2019-20		2020-21		2021-22		2022-23	
AR	Trip	AR	Trip	AR	Trip	AR	Trip	AR	Trip	AR	Trip
2	8	0	6	1	2	1	2	4	4	11	14

220kV D/C Birpara-Alipurduar TL (erst 220kV D/C Birpara-Salakati TL):-

2017-18		2018-19		2019-20		2020-21		2021-22		2022-23	
AR	Trip	AR	Trip	AR	Trip	AR	Trip	AR	Trip	AR	Trip
0	6	1	3	2	0	2	3	2	1	4	7

220kV S/C Birpara-Malbase TL:-

2017-18		2018-19		2019-20		2020-21		2021-22		2022-23	
AR	Trip	AR	Trip	AR	Trip	AR	Trip	AR	Trip	AR	Trip
0	7	0	0	1	1	1	2	1	3	0	5

TFR measurement were carried out on the towers as well as section of line identified during Post Fault Tripping Analysis. Tower Footing Impedance measurement shows high values in most of the tower locations in the said lines.

All the above-mentioned lines were commissioned under CTS scheme and all tower earthing were done as per prevailing earthing practice viz. counter-poise earthing, additional earthing after 7-8 KM span etc. But considering changes in weather conditions over the years, lightning phenomenon have now increased drastically in North-Bengal. Several newspaper publication also justifies severity of lightning in North-Bengal.It seems that the prevailing earthing design used in the towers are not sufficient to arrest the frequent tripping/auto-reclosures.

It has been felt necessary to adopt installation of Transmission Line Arresters as per latest practices adopt world wide in certain stretches of lines where instances of auto-reclosures and tripping are high. Independent studies carried out by Technical Institutions in North-Bengal have also suggested for installing lightening arrestors as weather pattern changes.

Sl No.	Name of Line	Total Tower considered for TL LA	Total No of TL Las proposed
1	220 KV D/C Siliguri Kishanganj TL	132	500
2	220 D/C KV Birpara-Chukha TL	40	136
3	220 D/C KV Birpara-Alipurduar TL	36	118
4	220 S/C KV Birpara-Malbase TL	38	76
	TOTAL	246	**830**

The tentative cost estimate for installation of 830 Nos. of Transmission Line Arrestors in 246 Nos. of Towers of said lines shall be around 6.5 Crores incl GST.

Considering the increase in lightning phenomenon over North-Bengal area, it seems that existing Tower Earthing system seems not sufficient and as such as a system improvement measure it is

requested to kindly consider the TL LA installation as per above at an estimated cost in the ongoing ADDCAP 2019-2024 tariff block of Chukha Transmission System. On approval same

shall be produced before truing up petition.

Members may discuss please.

Deliberation in the meeting

Powergrid ER-II representative submitted that the incidents of tripping of auto recloser are attributed to the lightning phenomenon as per the analysis done by studying the tripping trends and patrolling findings. Even after replacement of all the existing porcelain insulators with Composite Long Rod insulators and strengthening the earthing system by providing additional earthing at tower locations, the existing earthing system would not be sufficient.

He further submitted that transmission line arrestors are being used worldwide on the lines affected by severe lightning phenomenon. Further, a total of 830 locations in the Chukha Transmission system have been identified where tripping of auto recloser are more frequent. Offer has been collected from several reputed vendors and the estimated cost of above installation would be around 6.5 crores.

Upon enquiring about the instances of tripping due to lightning, Powergrid representative submitted that all the tripping incidents of auto recloser were due to lightning phenomenon.

West Bengal representative submitted that continuous earthing of towers i.e., coverage of earth wire and checking of Tower footing resistance throughout the lines has to be ensured.

Powergrid shared a brief presentation and it was noticed that the TFR data and all the readings were found to be more than 10.

MS ERPC enquired whether there are other such lines under state jurisdiction which are subjected to severe lightning and the steps taken to resolve the same. West Bengal representative submitted that they are taking corrective measures like frequent recording of tower footing resistance, etc. to resolve such issues.

ERLDC representative also advised Powergrid to share the details of improvement in performance observed in locations where transmission line arrestors had already been installed.

Upon enquiring about the feasibility of chemical earthing, it was informed that cost of chemical earthing is very high and durability is also less. Further, RoW issues may be encountered in case of chemical earthing.

OCC advised Powergrid to furnish all the details relevant to installation of transmission line arrestors to mitigate the tripping issues related to excessive lightning phenomenon so that a concrete decision may be taken in the upcoming OCC meeting.

ITEM NO. B.2: Continuous s/d of 400 KV D/C Binaguri-Kishenganj TL (Ckt-1 & Ckt-2) and 400kV D/C Kishanganj-New Purnea TL (Ckt-1 & Ckt-2) for Carrying out Diversion of Loc No.-09(Anchor Tower-1) vulnerable due to Mahananda River Course Change near to Kishanganj S/S.

1. 400kV Binaguri-New Purnea TL (POWERLINK Line) LILO at Kishanganj (LILO Portion belongs to POWERGRID) Loc No.-09 (Anchor-1 Tower) have got vulnerable due to change in course of River Mahananda. The location is situated in the left bank of River Mahananda. The Location is 400kV Multi-circuit tower QD+9.Presently, the location is 65 mtr from the river bank. During last season monsoon heavy soil erosion has been observed from the river bank.Last year the location was saved by construction of boulder sausage protection wall but the Boulder sausage walls and two no. boulder spur provided got collapsed and badly damaged.
2. Considering the vulnerability of the tower, as a permanent measure we are shifting the Anchor-1 Tower on Pile Foundation. Presently Pile Foundation work is U/P. Photos showing the condition of location and its present status is enclosed.
3. However, after completion of pile, during tower erection (Top part and X-arm fixing) & stringing work we require continuous S/D of 400kV D/C Binaguri-Purnea LILO @ Kishanganj [400kV D/C Binaguri-Kishanganj TL(Ckt-1 & Ckt-2) and 400kV D/C Kishanganj-New Purnea TL (Ckt-1 & Ckt-2) for 21 days(3 weeks) tentatively wef 1st week of Feb-23 to End of Feb-23.

Members may discuss.

Deliberation in the meeting

Representative of Powergrid delivered a brief presentation highlighting the following points:

1. *Continuous s/d of 400 KV D/C Binaguri-Kishenganj TL (Ckt-1 & Ckt-2) and 400kV D/C Kishanganj-New Purnea TL (Ckt-1 & Ckt-2) would be required for carrying out diversion of Loc No.-09(Anchor Tower-1).*
2. *The said location has become vulnerable due to change in course of river Mahananda near to Kishanganj S/s.*
3. *The s/d would be taken tentatively from 1st week of Feb-23 for 21 days. The period has been chosen as during this period Hydro generation would be minimum.*
4. *Presently pile foundation work is under progress and after the completion of the same, during tower erection (top part and X-arm fixing) and stringing work, S/d would be required.*

Representative of ERLDC submitted the following:

1. *S/d of 400kV Rangpo-Binaguri D/C can't be clubbed with the s/d of 400 KV D/C Binaguri-Kishenganj TL (Ckt-1 & Ckt-2) and 400kV D/C Kishanganj-New Purnea TL (Ckt-1 & Ckt-2). Work related to 400kV Rangpo-Binaguri TL may be completed prior to availing the said S/d of 400 KV D/C Binaguri-Kishenganj TL and 400kV D/C Kishanganj-New Purnea TL.*
2. *400kV Rangpo-Kishanganj S/d for AR work has to be deferred.*
3. *Possibility of Keeping one line of 400 KV D/C Binaguri-Kishenganj TL and 400kV D/C Kishanganj-New Purnea TL on ERS may be explored considering the reliability of the system.*
4. *Bus s/d at Binaguri S/s cannot be allowed at the same time. All these s/d should be availed in a staggered manner.*

On query representative of Powergrid submitted the following:

1. *Both the circuits of 400kV Rangpo-Binaguri line are charged now. There would not be any possibility of taking long outages of 400kV Rangpo-Binaguri single circuit or double circuit.*
2. *For Teesta-V docking undocking activities at Rangpo, s/d would be required for both circuits of 400kV Rangpo-Binaguri each of 2 hours.*
3. *Simultaneous s/d of both 400kV Rangpo-Kishanganj D/C and 400kV Rangpo-Binaguri D/C would not be availed.*
4. *The S/d can be preponed up to maximum 8-10 days as this is a huge tower, erection of the same is time taking.*
5. *Regarding possibility of ERS: The area has severe RoW issues, ERS implementation would cause further delay in availing S/d.*

OCC opined that:

1. *Erection of the tower may be done as far as possible without taking s/d. S/d can be availed from 25th Jan'2023 keeping 10-12 days for erection activities in safe zone.*
2. *Status update would be taken in the next OCC meeting.*
3. *All efforts should be made to complete the work by 10th-12th February'2023.*

ITEM NO. B.3: Continuous Continuous S/D of 220kV D/C Siliguri-Kishanganj TL(Ckt-1 & Ckt-2) and 220kV D/C Dalkhola-Kishanganj TL (Ckt-1 & Ckt-2) for carrying out Diversion of tower location no.-29 of 20kV D/C Dalkhola - Kishanganj TL & Loc No.-30 of 220kV D/C Siliguri-Kishanganj TL vulnerable due to bank erosion on Mahananda River.

1. Location no.-29 of 220kV D/C Dalkhola-Kishangnaj TL & Loc No.-30 of 220kV D/C Siliguri-Kishanganj TL have become vulnerable due to change in course of River Mahananda. The location is situated on the left bank of River Mahananda (Main channel). Further, after this season monsoon a secondary channel (approximately 20-30 m wide) have also been formed such that location no.-29 of 220kV D/C Dalkhola-Kishangnaj TL & Loc No.-30 of 220kV D/C Siliguri-Kishanganj TL are now coming in-between the main river and new formed channel. Presently, location no.-29 & 30 are 30 mtr away from the main river bank and approx. 10 mtr away from secondary channel. During last season monsoon heavy soil erosion has been observed from the main river bank as well as newly developed channel.
2. Last year the locations were somehow saved by temporary protection wall with sand bags and bamboo piling.
3. However, considering the last year trend and present site condition, it has been felt prudent to shift the affected 2 Double Ckt towers on a single Multi-ckt Pile Foundation.
4. However, during construction of Pile and during tower erection (Top part and X-arm fixing) & stringing work we require continuous S/D of 220kV D/C Siliguri-Kishanganj TL (Ckt-1 & Ckt-2) and 220kV D/C Dalkhola-Kishanganj TL (Ckt-1 & Ckt-2) for 14 days (2 weeks) tentatively wef 2nd week of Mar-23 to End of Mar-23.

Photograph of Location No.-09(Anchor-1) of 400kV D/C Binaguri-Kishanganj TL and 400kV D/C Kishanganj-New Purnea TL(River-Mahananda) after Flood

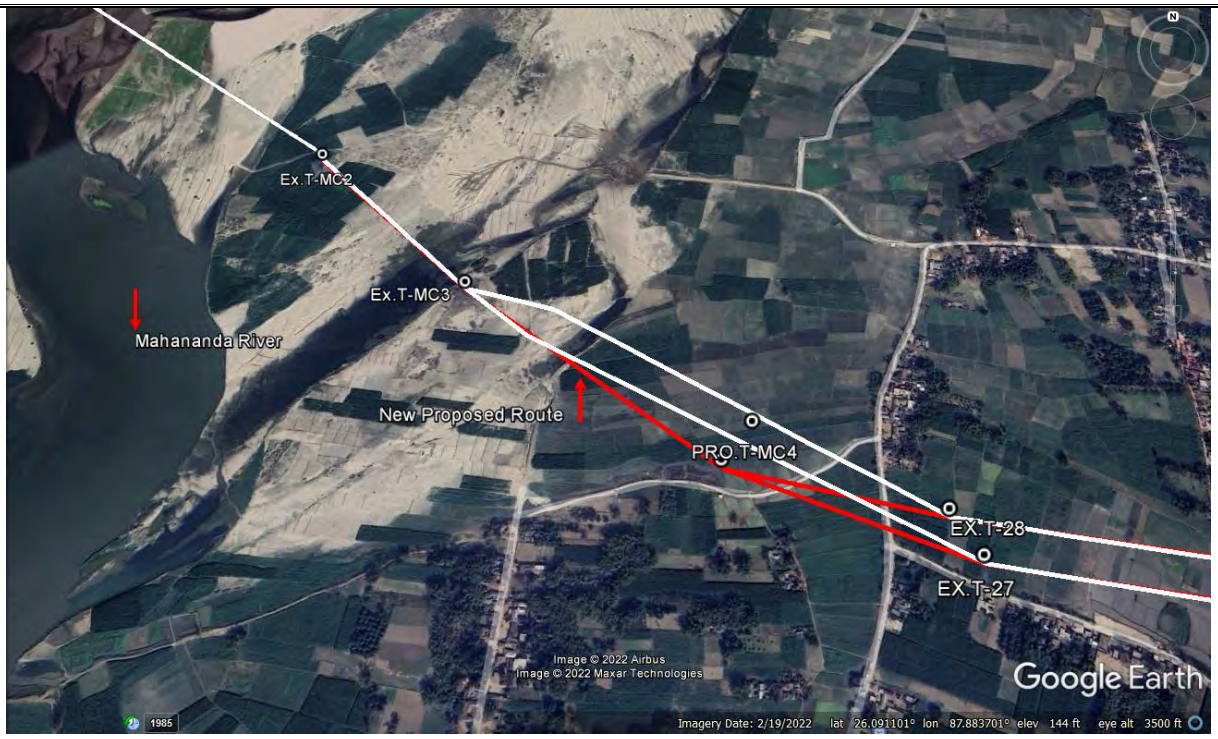

T-12 QD+0
T-11 QD+9
MAHANANDA RIVER
T-10 QD+25
T-9 QD+9
T-8 DD+0
T-8 DD+0
Proposed Tower-9
PROPOSED NEW ROUTE
Pichalia
Image © 2022 Maxar Technologies
Image © 2022 Airbus
Google Earth
Imagery Date: 3/27/2022 lat 26.098866° lon 87.881654° elev 149 ft eye alt 3783 ft
1985

Photos showing the present condition of Pile Foundation work at Loc No.09(Anchor-1):-



Pile Cap foundation work under progress as on 01.12.2022

Photographs of Location no.-29 of 220kV D/C Dalkhola-Kishangnaj TL & Loc No.-30 of 220kV D/C Siliguri-Kishanganj TL after flood(River:Mahananda)



Photographs showing the present status of Pile Foundation work :-

Liner driving work in progress as on 01.12.2022

Powergrid may update. Members may discuss.

Deliberation in the meeting

Representative of Powergrid submitted the following:

1. *Continuous S/D of 220kV D/C Siliguri-Kishanganj TL(Ckt-1 & Ckt-2) and 220kV D/C Dalkhola-Kishanganj TL (Ckt-1 & Ckt-2) would be required for carrying out diversion of tower location no.-29 of 220kV D/C Dalkhola - Kishanganj TL & Loc No.-30 of 220kV D/C Siliguri-Kishanganj TL.*
2. *The said locations have become vulnerable due to change in course of river Mahananda.*
3. *During construction of pile and during tower erection (top part and X-arm fixing) and stringing work, S/d would be required.*
4. *S/d would be required for 14 days tentatively w.e.f March'23 to end of March'23.*

OCC was of the view that:

1. *As demand of West Bengal starts increasing from the month of March, it would be difficult to allow s/d of the said elements during that period.*
2. *The work under item No. B2 may be completed by 10th-12th February and thereafter the s/d of 220kV D/C Siliguri-Kishanganj TL (Ckt-1 & Ckt-2) and 220kV D/C Dalkhola-Kishanganj TL (Ckt-1 & Ckt-2) may be taken.*
3. *All efforts should be made to complete the work by February'2023.*

ITEM NO. B.4: 132 KV GIS Commissioning planning and shutdown requirement for Malda S/s.

As per ERSS-XXII, complete AIS portion of 132 KV system at Malda S/S will be converted to 132 KV GIS along with provision of additional 02 No's 132 KV Line Feeder (Malda-Manikchak-D/C). Earlier in October-2022 a detail work plan submitted considering phase wise segregation of ICT/Feeders such that GIS erection work and Feeders, both are in service and with calculated risk proportion the work could be completed.

However, during actual execution it is observed that while going for erection in between Section-I & II, both section required S/D and only one feeder and one ICT (Namely ICT-4) will be in service. Revised plan along with present status is attached for reference in Separate PPT.

As commissioning of the 132 KV GIS is to be completed before February-2023, it is requested to provide necessary S/D as given in **Annexure B4.**

Members may kindly discuss.

Deliberation in the meeting

Representative of Powergrid delivered a brief presentation highlighting the following:

1. *Phase-I (complete shutdown of 132kV bus) has been completed.*
2. *Phase-II (Bus Section-1:GIB erection: 16.12.2022 at 07:00 hrs to 19.12.2022 at 16:00 hrs on daily basis) has been completed.*
3. *Phase-III (Bus Section-I & II) S/d required for GIB Erection: 26.12.2022 at 07:00 hrs to 27.12.2022 at 16:00 hrs on daily basis.*
4. *Phase-IV (Bus Section-II)S/d required for GIB Erection: 28.12.2022 at 07:00 hrs to 29.12.2022 at 16:00 hrs on daily basis.*
5. *Phase-V (Bus Section-II & III)S/d required for GIB Erection: 30.12.2022 at 07:00 hrs to 31.12.2022 at 16:00 hrs on daily basis.*
6. *Phase-VI: S/d required for GIB Erection of ICT-I: 01.01.2023 at 07:00 hrs to 15.01.2023 at 16:00 hrs on daily basis.*
7. *Phase-VII : GIB Erection of ICT-II From 16/01/23 at 07:00 hrs to 30/01/23 at 16:00 hrs on daily basis.*
8. *Phase-VIII: GIB erection of ICT-IV From 31/01/23 at 07:00 hrs to 14/02/23 at 16:00 hrs on daily basis.*

Representative of West Bengal apprised the forum that all the activities should be completed by 31st January'2023, as beyond that allowing shutdown would be difficult owing to increase in boro load.

OCC advised Powergrid that:

1. *Efforts should be made to squeeze the said timeline and complete all the activities by 7th February'2022.*
2. *All the said activities should be completed before taking S/d of 220kV D/C Siliguri-Kishanganj TL(Ckt-1 & Ckt-2) and 220kV D/C Dalkhola-Kishanganj TL (Ckt-1 & Ckt-2)*

ITEM NO. B.5: Complete 400KV shutdown at Malda S/s for commissioning of 400 KV Bus coupler at Malda S/s.

As already known, that placing & location of 400 KV Bus Coupler Bay at Malda is very much critical and due to DMT configuration the induction is huge. To avoid the same, as referred by committee (ERPC/ERLDC), complete Bus S/D taken on 20.11.2022 at Malda SS for facilitating dismantling of 400 KV CB.

At present the erection of the poles are completed and cabling/earthing/wiring related works are going on. Certain snaps are attached for reference. After complete erection of all poles, for erection of 4" Al pipe bus between CT to CB & CB to Isolators again Hydra movement required.
Going by the space constraints it will be difficult to carry out the work by taking 01 Bus S/D at a time. Accordingly, it is planned to take complete 400 KV Bus S/D on 15.01.2023 (Sunday) for connecting newly erected CB with both busses and can be taken into service subsequently.

Members may discuss.

Deliberation in the meeting

Powergrid representative submitted that pole erection work has been completed and gas filling would be done by 23rd December 2022. Shutdown of one day on 15th January 2023 would be required for connecting newly erected CB with both busses.

West Bengal representative agreed for one day shutdown on 15th January 2023. However, Powergrid vide mail dated 17.01.2023 mentioned that the said shutdown was availed on 08.01.2023.

ITEM NO. B.6:	**De-stringing of overhead conductor in Power Line Crossing span of 220kV D/C Farakka-Lamatia Line in between span (Location No.-5 & Location No.-6) by JUSNL in order to protect underlying 400 kV S/C Farakka Sagardighi I & II TL (Loc No.- 3 & 4) of POWERGRID due to severe/repetitive theft incidents by miscreants near to Farakka Plant.**

220kV Farakka-Lalmatia TL is under break-down condition due to tower collapse incidents since 21.04.2021. Since the line is under off condition for long, at several locations of the said line near to Farakka serious tower member theft/conductor theft incidents are occurring.

During patrolling of 400 kV S/C Farakka Sagardighi I & II TL on dated 07.11.2022, huge no. of missing members has been observed in the Powerline crossing towers of 220 KV Farakka Lalmatia TL (owned by JUSNL) situated in village: Jorpukuria, Farakka crossing over Loc 03 & 04 of both 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID.

Considering the fact that any incident of collapse of towers of the mentioned crossing towers of Farakka Lalmatia line shall damage our existing 400 kV Farakka Sagardighi TL which is already more than 35 years old. Earlier also, an incident of Tower collapse of 220 kV Farakka Lalmatia line over POWERGRID 400 kV S/C Farakka Durgapur 1 & 2 TL had occurred in the year 2020 which had severely damaged the 400 kV S/C Farakka Durgapur 1 & 2 lines. Restoration of the lines were carried out under extreme ROW situations.

Considering the seriousness of the issue JUSNL was requested to rectify the towers Loc No.-5 & 6 of 220kV Farakka-Lamatia Line on urgent basis. Vide mail dated 08.12.2022, JUSNL have

informed that they have rectified the affected towers but considering the area being severe theft prone they will not able to save the towers in near future. Copy of mail enclosed at **Annexure B.6.**

In view of above considering the seriousness/repetitive theft incidents in towers near to Farakka Plant, M/s JUSNL is requested to remove the conductors in between Span Loc No.-5 & 6 of 220kV D/C Farakka-Lalmatia so that underlying POWERGRID lines 400kV Farakka-Sagardighi-I & II may be protected.

Deliberation in the meeting

Powergrid representative submitted that the belt is a theft prone area and the 220kV Farakka-Lalmatia TL being in an uncharged condition is being subjected to severe member theft incidents which may lead to tower collapse. Two nos. of Farakka-Sagardighi S/c line which passes beneath the 220KV Farakka-Lalmatia TL will also be severely damaged causing long outage. Therefore, destringing of a portion of 220kV Farakka-Lalmatia TL may be done to protect the 2 nos. of underlying Farakka-Sagardighi S/c lines.

JUSNL representative submitted that tower location 1 to 10 fall under the category of high theft prone zone. At tower locations 1, 2 & 4, the leg portion of the towers have been dismembered and destringing of towers in such situation may lead to severe unsafe condition. Moreover, destringing of tower at loc 5 & 6 would also require immediate dismantling of towers to prevent any theft. Also, severe RoW issues would be faced while carrying out any work in these areas. He further submitted that since they do not have the drawings of these towers, problems will be encountered during re-erection of these towers.

He further submitted that provisioning of watch & ward on continuous basis may be provided for tower no 5 & 6 as an alternative to the above issue.

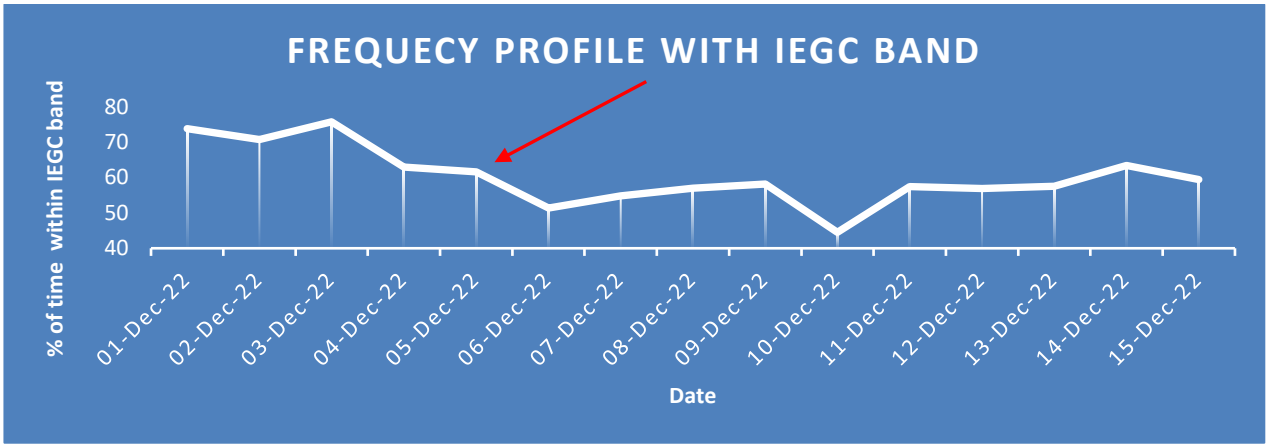
Powergrid representative requested JUSNL to destring the portion of line between the tower at loc 5 & 6 for the time being and carry out the activity of watch & ward.

OCC was of the view that destringing of line between the tower at loc 5 & 6 may be done at the earliest to protect the underlying Farakka-Sagardighi S/c lines and advised JUSNL to submit the timelines for the same.

ITEM NO. B.7: Behavior and Operation of the Grid after implementation of new DSM Regulations, 2022.

CERC (Deviation Settlement Mechanism and Related Matters) Regulations, 2022 has been implemented with effect from 05.12.2022. After implementation of the new DSM regulation, the percentage of time, frequency hovering within the IEGC band has reduced considerably. Further, the percentage of time, frequency being above the band has increased.

Frequency Profile (% Time)			
Date	<49.90	49.90-50.05	>50.05
01-Dec-22	12.2	73.81	13.99
02-Dec-22	17.78	70.75	11.47
03-Dec-22	6.89	75.75	17.36
04-Dec-22	8.07	62.94	28.99
05-Dec-22	3.75	61.62	34.63
06-Dec-22	13.3	51.4	35.3
07-Dec-22	17.36	54.79	27.85
08-Dec-22	8.67	56.97	34.36
09-Dec-22	9.03	58.19	32.78
10-Dec-22	23.19	**44.51**	32.29
11-Dec-22	12.81	57.43	29.76
12-Dec-22	16.88	56.88	26.25
13-Dec-22	12.67	57.57	29.76
14-Dec-22	10.66	63.37	25.97
15-Dec-22	16.25	59.44	24.31

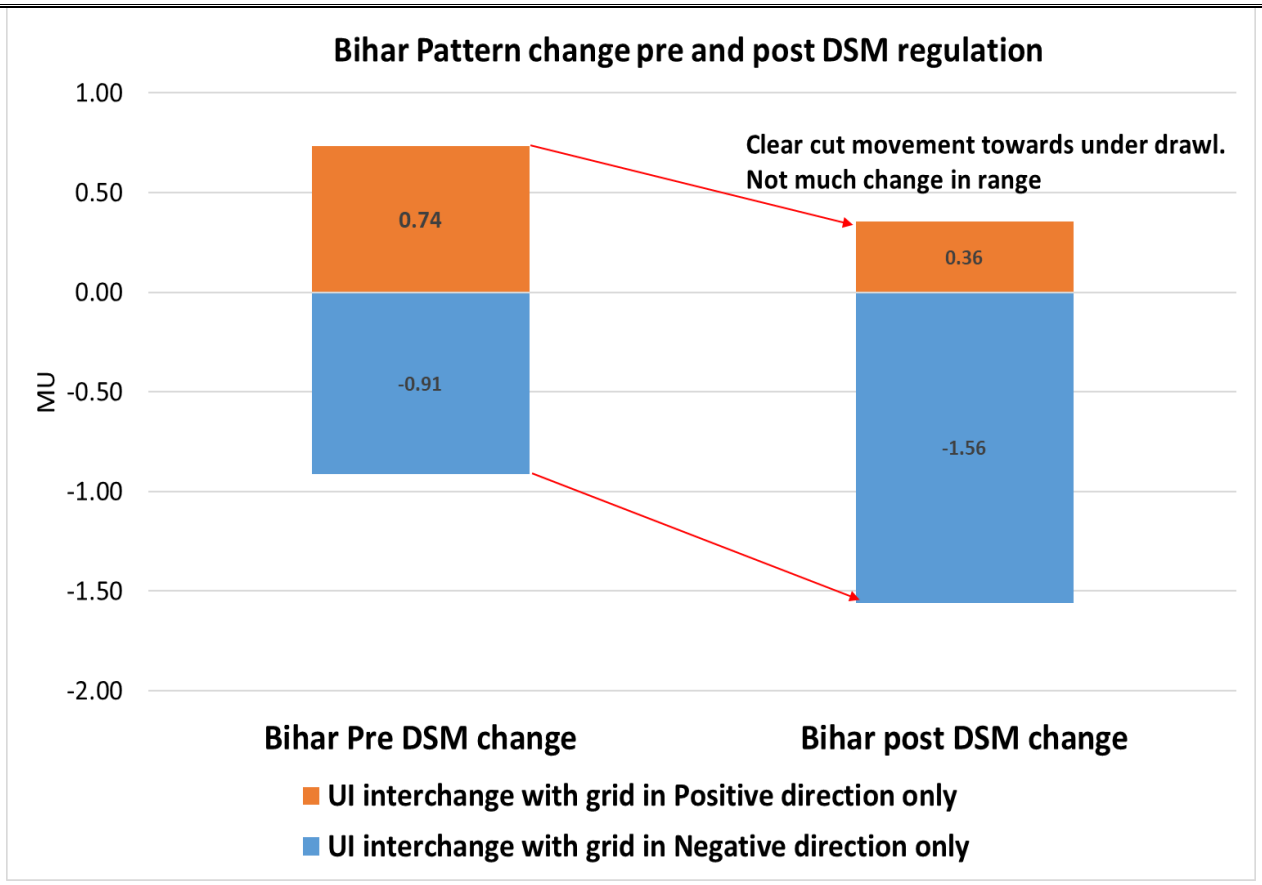


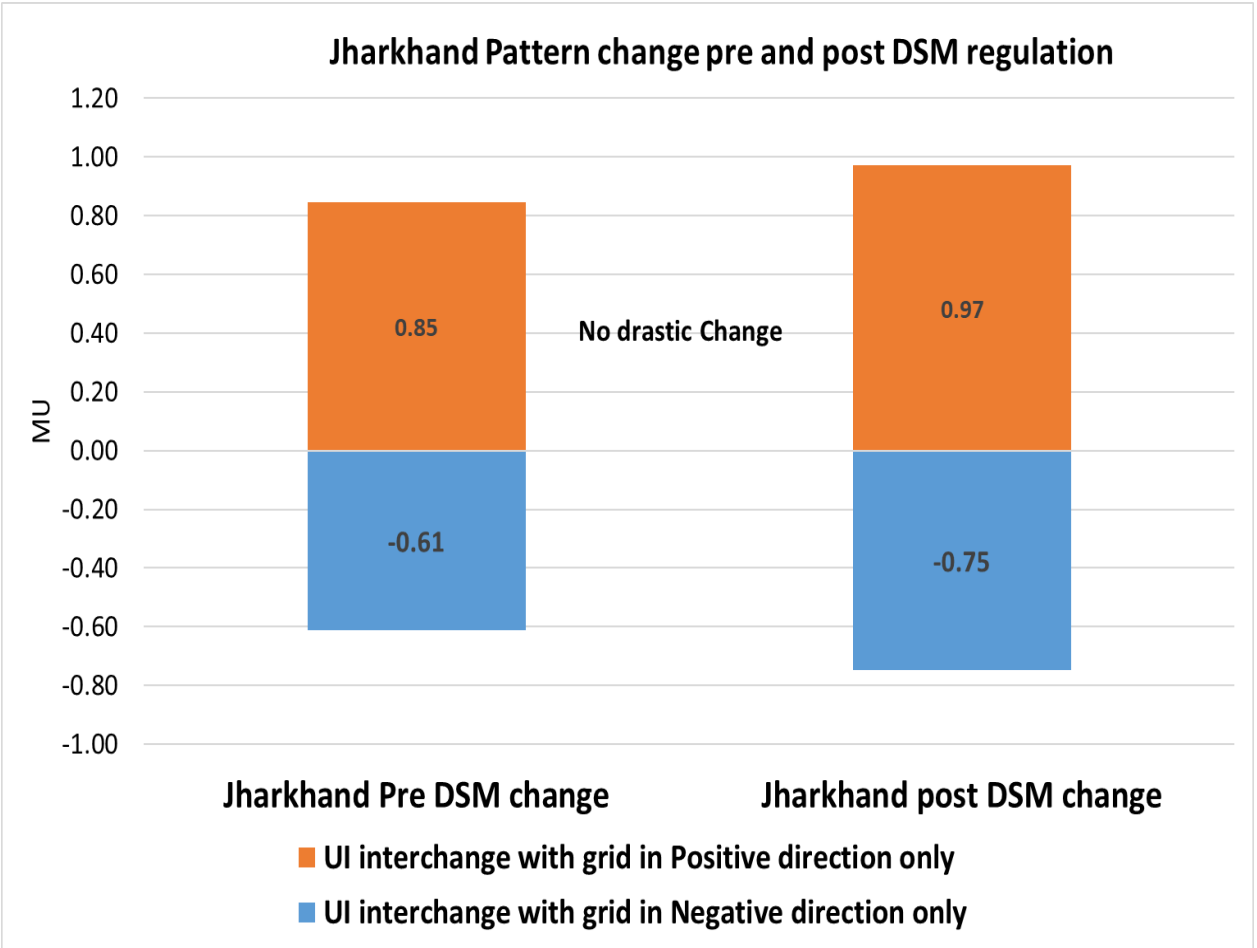
Behavior of various constituents as well as the possible reasons for such frequency excursion have been analyzed.

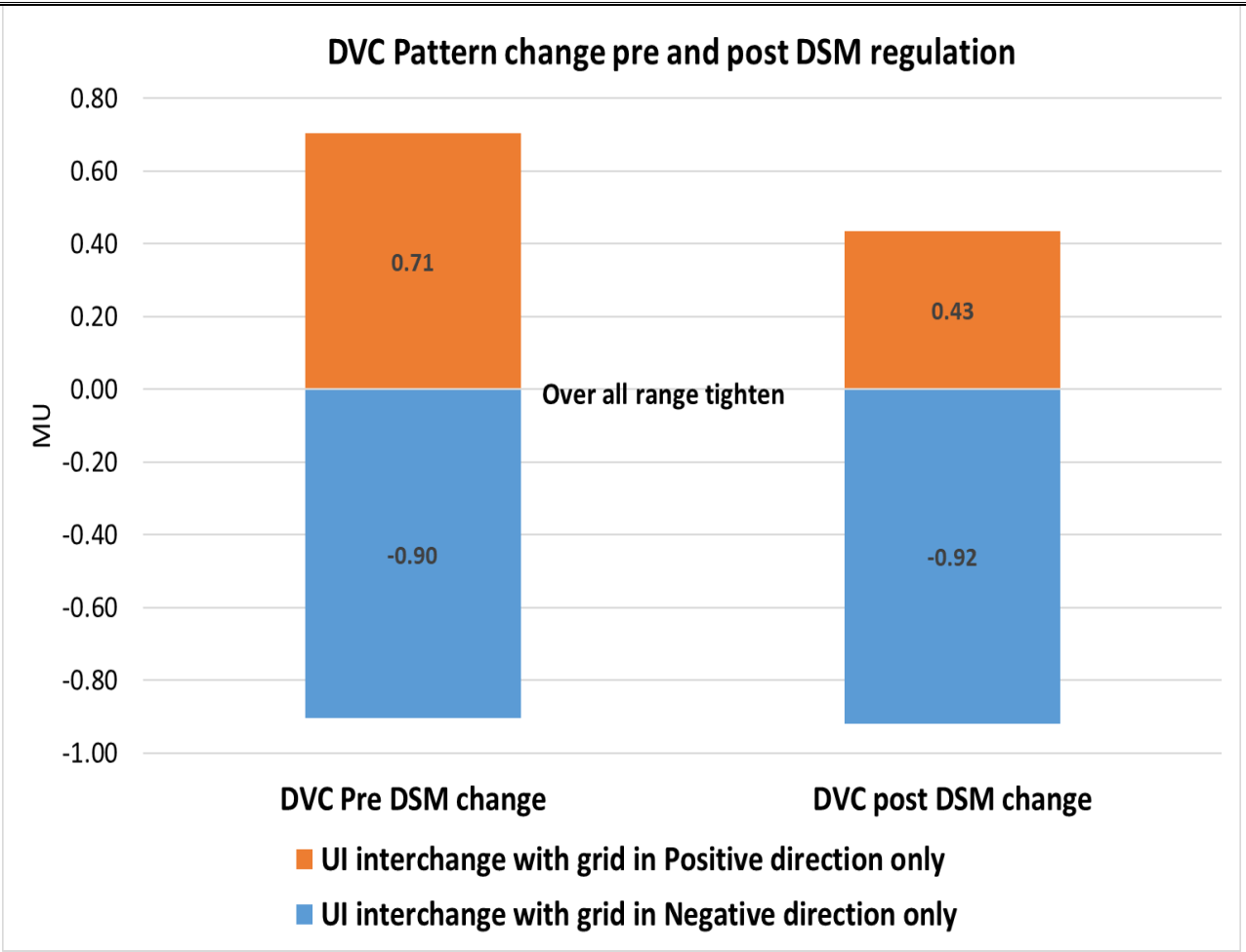
a) **The analysis of state profiles post 05.12.2022**:

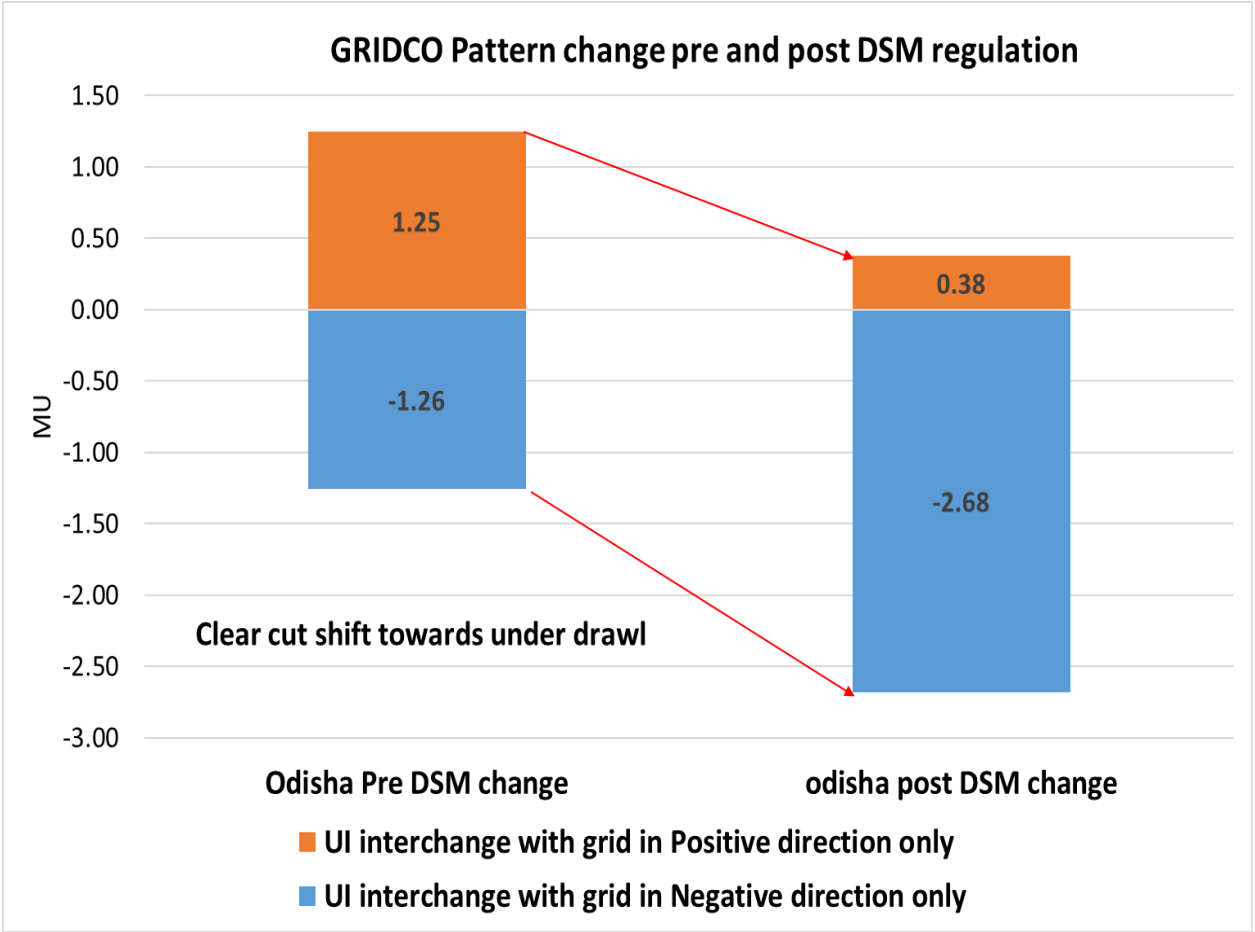
For understanding the change in pattern interchange following data is used:

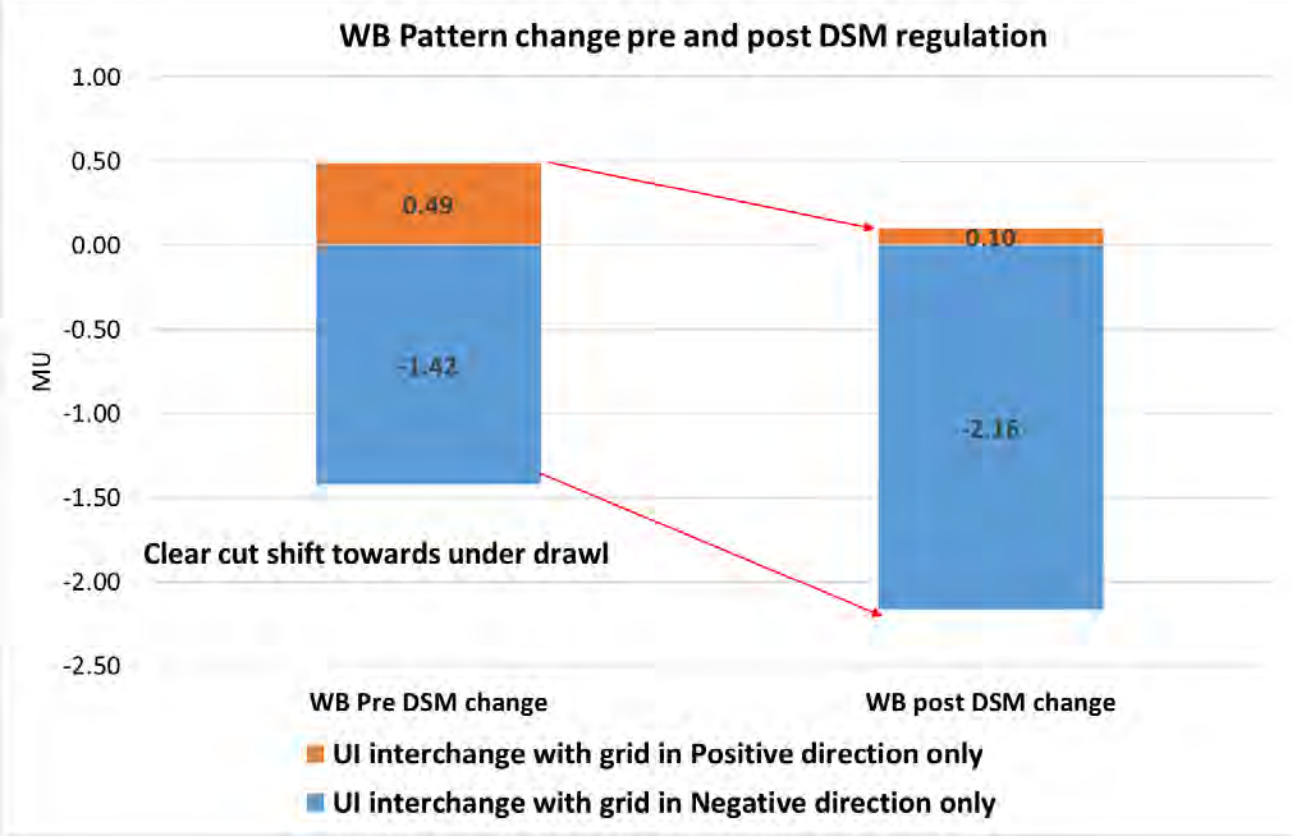
1. For pre-DSM change period- average of 28th Nov 2022 to 4th Dec 2022 (Monday to Sunday)
2. For post DSM change period- average of 5th Dec 2022 to 13th Dec 2022 (Monday to Sunday)

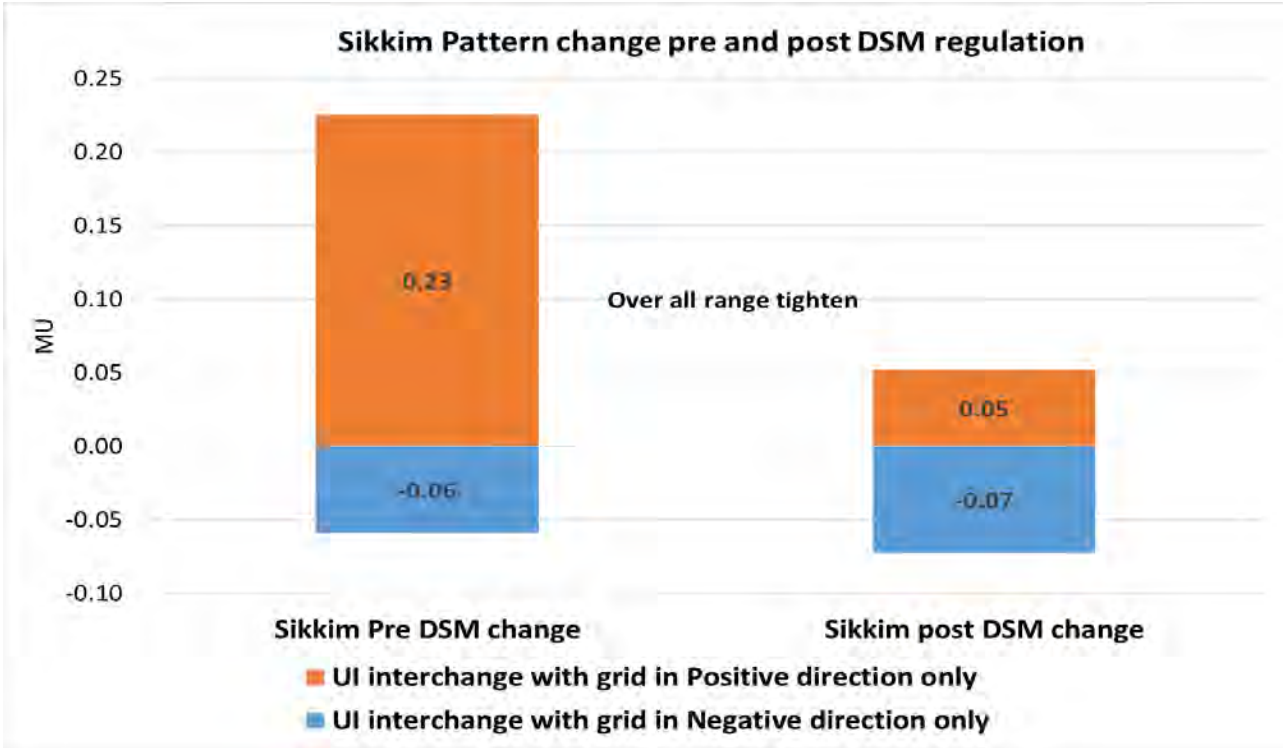

Bihar Pattern change pre and post DSM regulation
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
MU
0.74
-0.91
0.36
-1.56
Clear cut movement towards under drawl.
Not much change in range
Bihar Pre DSM change
Bihar post DSM change
UI interchange with grid in Positive direction only
UI interchange with grid in Negative direction only


Jharkhand Pattern change pre and post DSM regulation
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-1.00
MU
0.85
-0.61
No drastic Change
0.97
-0.75
Jharkhand Pre DSM change
Jharkhand post DSM change
UI interchange with grid in Positive direction only
UI interchange with grid in Negative direction only


DVC Pattern change pre and post DSM regulation
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-1.00
MU
0.71
-0.90
0.43
-0.92
Over all range tighten
DVC Pre DSM change
DVC post DSM change
UI interchange with grid in Positive direction only
UI interchange with grid in Negative direction only


GRIDCO Pattern change pre and post DSM regulation
1.50
1.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
MU
1.25
-1.26
0.38
-2.68
Clear cut shift towards under drawl
Odisha Pre DSM change
odisha post DSM change
UI interchange with grid in Positive direction only
UI interchange with grid in Negative direction only





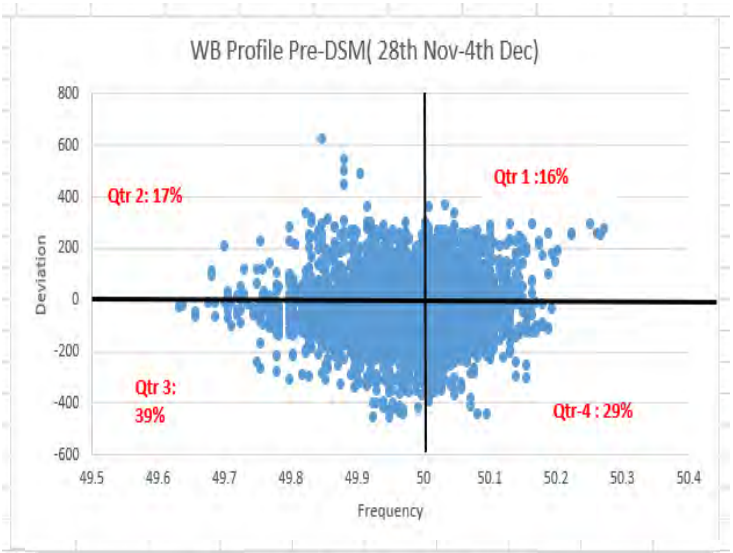
Summary of observations:

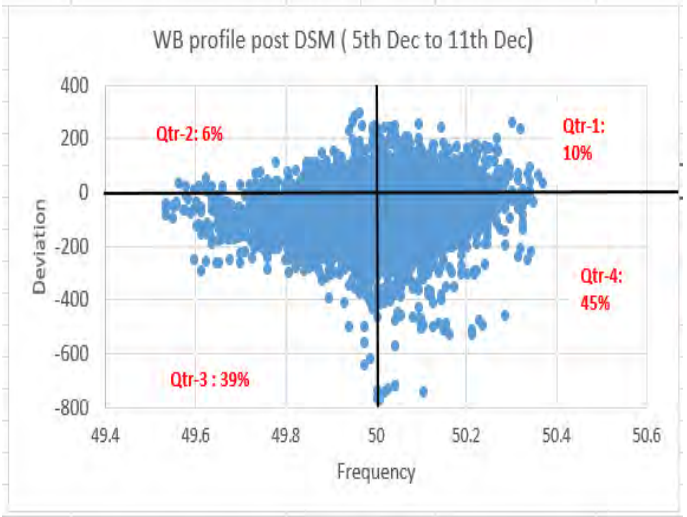
State	Observation
Bihar	Shift towards underdrawl, Deviation remaining in the same range
Jharkhand	No significant change
DVC	Overall deviation range tightened
GRIDCO	Shift towards underdrawl almost doubled, deviation range also increased
WB	Shift towards underdrawl almost doubled, deviation range almost same
Sikkim	Overall deviation range tightened

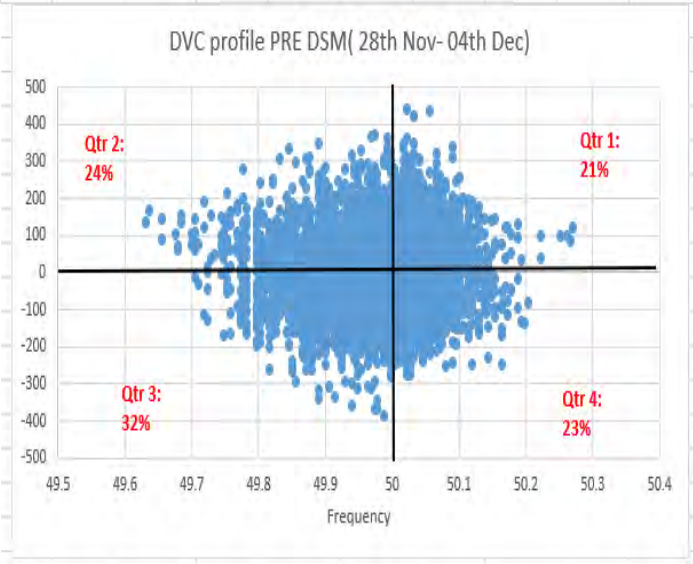
b) Plot of deviation with respect to frequency as a scatter plot:

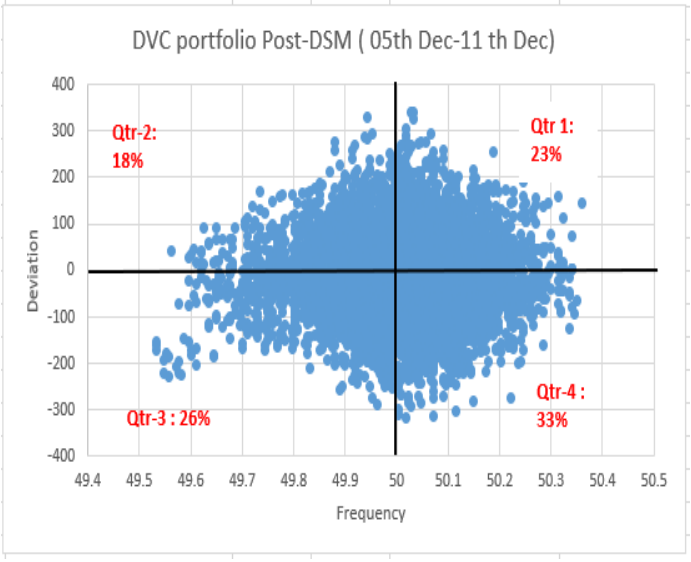
The values (%) in Quadrants I & III shows that a particular state control area is supporting the grid frequency and values (%) in Quadrants II & IV shows that a particular state control area is worsening the grid frequency.

The operation in 4th Quadrant increased for most of the states i.e underdrawl during high frequency period causing frequency to be above IEGC band for a considerable amount of time.



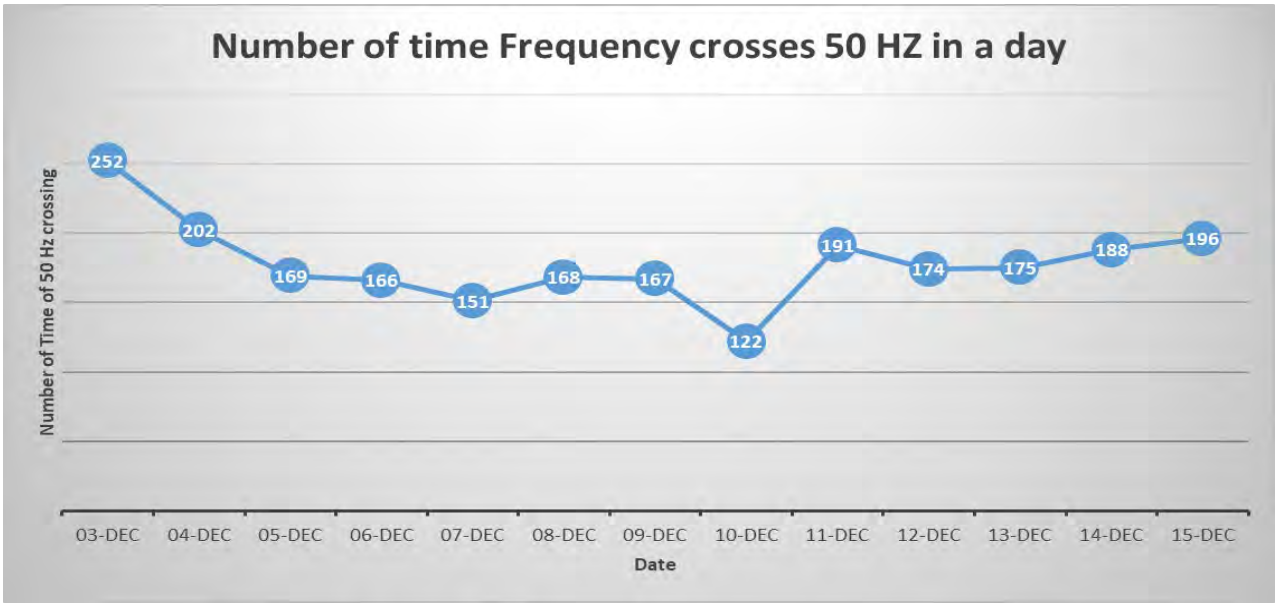






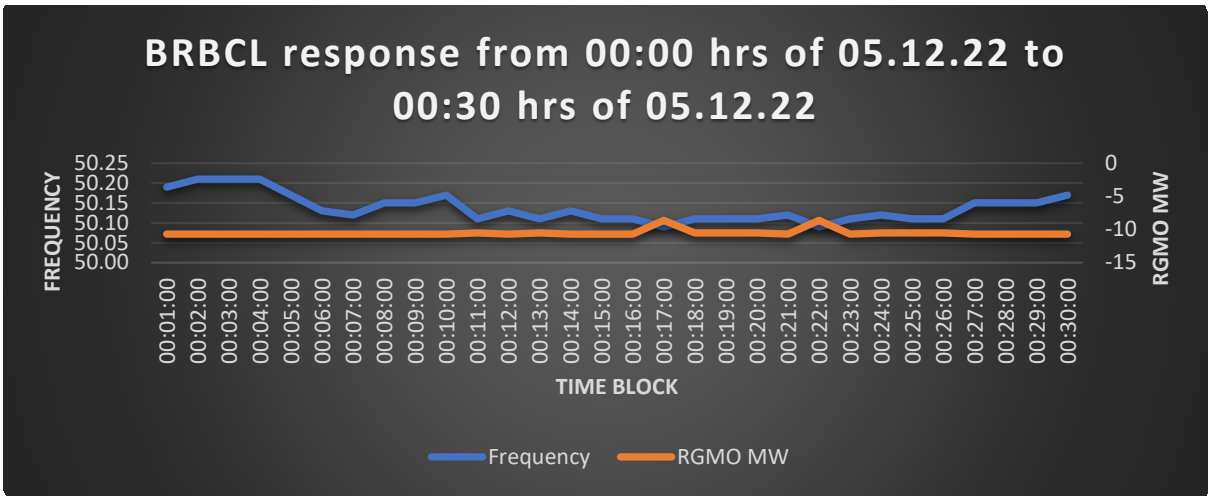
c) Reduced crossing of 50 Hz:

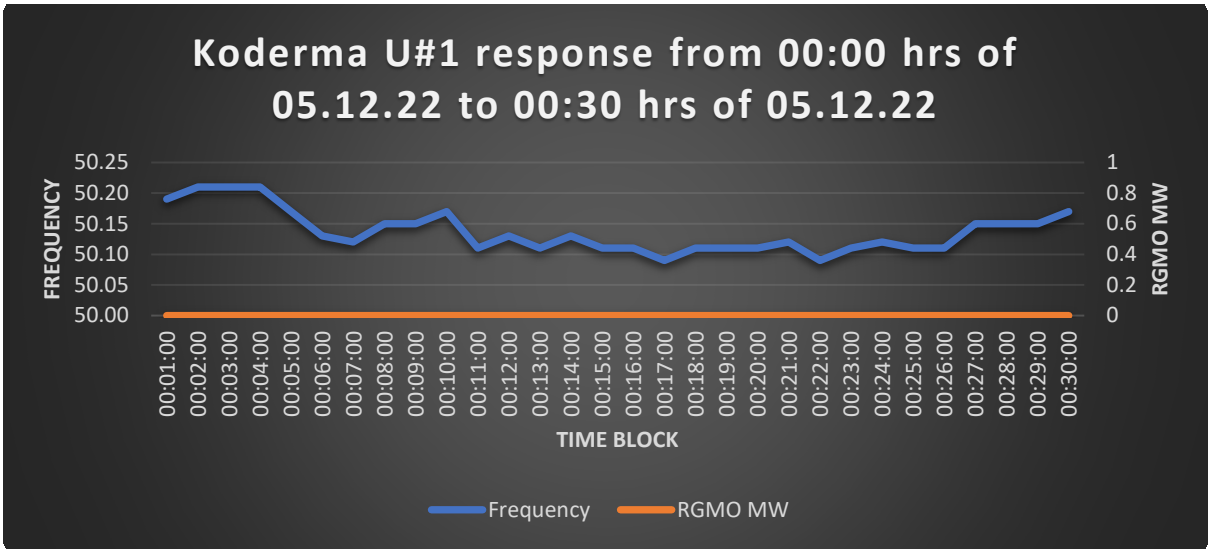
The frequency is hovering in one side for a longer period of time and the number of time frequency crossing 50 Hz has reduced considerably from 05.12.2022 onwards.



d) RGMO response:

After 5th December,2022 generators are concerned regarding the free governor mode of operation above 50 Hz. As per the data received few generating station are backing down generation during high frequency period as per grid code and while few are not responding.





As per draft IEGC,

The PRAS shall start immediately (within two seconds) when the frequency deviates beyond the dead band as specified in clause (i) of this Regulation and provide its full PRAS capacity obligation within 30 seconds and shall sustain up to five (5) minutes.

Accordingly, all the generators are requested to provide sustain primary frequency response as per the grid requirement.

Deliberation in the meeting

*ERLDC delivered a presentation on ER Grid performance post implementation of new DSM w.e.f 5/12/2022 (**Annexure-B7.1**). It was seen that the percentage of time frequency within the band of 49.9-50.05 Hz had reduced considerably post 5th December 2022. It was shown that almost all the states in general started underdrawing and the underdrawal was observed to be irrespective of system frequency. This pattern was seen even in some states outside Eastern Region. As far as generators were concerned, it was seen that RGMO response reduced considerably post 5th December. The generators were reluctant to deviate from schedule as penalty for the same is quite stringent especially in case of under generation.*

It was seen that only few generators were providing RGMO response. BRBCL was seen to be in under generation mode in view of RGMO response during high system frequency and BRBCL representative requested to take care of the issue and stressed that they should not be penalized for helping the system. The view of BRBCL was appreciated and they were requested to write to CERC highlighting the issue with copy to ERPC and ERLDC.

The matter regarding DSM price more than Rs. 35-40 per unit in certain blocks of the day due to despatch of costly gas generators in RRAS was also discussed at length. The OCC forum expressed concern at such exorbitant high rate. Director (SLDC), Odisha stated that dispatch of only 1000-1500 MW of gas generation in few blocks should not distort DSM price of entire country and opined that there should be some calculation modality for limited applicability of such rate to enable compensation of only said gas generation. OCC seconded the proposition and Odisha was requested to write to CERC in this regard.

The incident of large frequency fluctuation on 20th December due to variation in solar generation of NR on account of cloud cover was explained by ERLDC. It was shown that RRAS/SRAS dispatch was activated to the maximum extent available, but it was not adequate to arrest frequency fluctuation. Hence the need for more reserve was highlighted and it was stressed that only adequate availability of reserve would be able to contain frequency fluctuation.

*The states were requested (especially DVC, West Bengal, Odisha) to bring their generators in the ambit of SRAS. A list of generators who have the potential to be included in SRAS is given in **Annexure-B7.2.** Any unscheduled exchange with grid affects the frequency control decision taken by NLDC in a negative way. States were requested to maintain their drawl close to schedule and not to use DSM like a spot market. For achieving the same, States were requested to do accurate forecasting and portfolio management. It was mentioned that MOP had formed a committee to investigate various aspects and difficulties post new DSM implementation. The utilities of ER were advised to write to CERC expressing their difficulties as discussed in OCC which would supplement the activities being undertaken at central level to address the issues.*

ERPC representative made a presentation on implication on constituents in monetary terms before and after implementation of new DSM Regulations.

As per new DSM Regulations, Bihar had to pay a charge of Rs 2.3 Crore for overdrawing against Rs 66 lakhs as per old DSM Regulations. Jharkhand had to pay Rs 11.86 Crore as against 3.3 Crore. This was mainly due to high DSM rates during the evening peak hours.

Penalties have also increased for generators and for inter border transactions 2-3 times as per new DSM Regulations.

BRBCL representative submitted that during high frequency conditions, when negative correction is being demanded by system operator, under injection within 2% is not being able to be maintained due to which penalty is being imposed.

SE ERPC submitted that the provisions of new DSM Regulations are favoring the conditions of under drawl due to which the states having the flexibility of own generation are resorting more to under drawl.

ITEM NO. B.8: Development of online portal for scheme of national level optimization of surplus generation capacity in the country.

The scheme for National level optimization of surplus generation capacity has been approved by Hon'ble Minister of Power & NRE. Accordingly, an online portal at national level for implementation of the scheme is in the developing stage.

The generating stations and beneficiaries may have following benefits through portal/scheme:

1. The power shall be bought/sold at the tariff as determined by the Appropriate Commission.
2. Optimal utilization of Generating stations and their increased availability.
3. Availability of Power to DISCOMs improves and reduction in power cuts.
4. Meet the power demand of the country especially during the crisis situation in the month of April, May, September and October.
5. Reduction of Fixed charge burden on the States having surplus power.

The portal will be operationalized by 30th January, 2023 and the beneficiaries having the login credentials will only be able to utilize the portal.

In this regard, following information are required:
1. The power plants which have been under-utilized in last one year.
2. The Plants/States/DISCOMs are likely to have surplus generation capacity and States/DISCOMs have shortages. (Format attached at **Annexure B.8**)

Members may note.

Deliberation in the meeting

OCC advised all the States/DISCOMs to submit the surplus generation capacity and shortages to ERPC at the earliest.

ITEM NO. B.9: Preparation of Distribution Perspective Plan 2030 by CEA.

On the advice of MoP, DP&T Division of CEA is preparing a Distribution Perspective Plan (DPP) for period 2022-2030 for distribution sector, in line with the National Electricity Plan, to evolve an integrated approach for strengthening the distribution sector for providing 24x7 reliable & quality power to all consumers in the country. This plan would serve as a guiding tool for the Governments / Power sector utilities and will also enable equipment manufacturers to augment their [production capacity accordingly.

In order to prepare the DPP-2030, all the DISCOMs have been requested by CEA to furnish the requisite data in a format along with the names of the Nodal Officers vide various communications since August, 2022. In order to sensitize the matter, various online meetings were also conducted by CEA with DISCOMS, however, some of the DISCOMs have not furnished the data in the desired Format in spite of various reminders.

As the completion of DPP-2030 is a time bound activity, it is requested to DISCOMs of Eastern Region to furnish the requisite data in the prescribed format by the 15th January, 2023 to CEA on the following Email IDs: cedpt-cea@gov.in / vivek.goel.cea@nic.in .

Deliberation in the meeting

OCC advised all the DISCOMs of Eastern Region to furnish the requisite data in the prescribed format by the 15th January, 2023 to CEA on the following Email IDs.

ITEM NO. B.10: Follow up Agenda

SL No	Issue/Agenda	Discussion in last OCC Meetings	Update/Status
1.	**Ensuring Reliability of Barauni Generating Station (2X250 MW)** 220 kV Barauni TPS (2 X 250 MW) is connected with grid via 220 kV Barauni-Begusarai D/C, 220 kV Barauni-Mokama-Biharshariff D/C and 220 kV Barauni-Hajipur D/C. Out of these 220 kV Barauni-Hajipur one circuit is at present out on tower collapse and expected by 22-25 July 2022 as per Bihar SLDC. The availability of Barauni power plant is equally important from the Pan-India resource adequacy point of view. However, Barauni power plant experienced a total blackout due to loss of evacuation path on three occasions in last three months. One meeting was convened by ERLDC on 12 July 2022 to	In the 197th OCC meeting, Bihar representative submitted that jumper tightening work was completed on 3rd November 2022. Reconductoring work is expected to be completed by Dec 22. 220 KV Biharshariff-Mokama D/C line is in closed condition. Circuit -1 was synchronized on 30th October 2022 at 13:30 Hrs. and Circuit-2 on 3rd November 2022 at 19:15 Hrs. NTPC representative submitted that Load carrying capacity would be tested once jumper tightening work is completed.	*Bihar representative submitted that the order has been placed and the work would be completed by the end of January 2023.*

	discuss these events. Members from Bihar SLDC, BSPTCL CRITL, BGCL, NTPC Barauni, NTPC Patna RHQ and ERPC participated in the discussion.		
2.	**<u>Islanding Schemes in Eastern Region</u>** **2.1. <u>Patna Islanding Scheme:</u>** In the meeting held on 28th December 2020 and chaired by the Hon'ble Minister of State (IC) it was directed that islanding schemes should be implemented for all major cities of the country considering all the strategic and essential loads. Subsequently, in line with the direction given in the meeting, the subject matter was discussed in PCC meeting of ERPC, and it was finalized that new islanding scheme would be implemented for capital city of Patna & Ranchi.	In the 197th OCC Meeting, NTPC representative submitted that OEM had refused to carry out the study. OCC referred the agenda to the upcoming 47th TCC & ERPC meetings. In 47th TCC meeting, representative of NTPC informed that they are in process of appointing an agency to carry out the study. He further informed that appointment of the agency shall be done by January'23.	*NTPC representative submitted that they had contacted with IIT Delhi, IIT BHU and IIT Bombay. Response has been received from IIT BHU and they are planning to schedule a meeting including all concerned stake holders.*
	2.2. <u>Chandrapura Islanding Scheme:</u> The scheme detail in brief is as follows: ➢ The CTPS-B islanding scheme is to de designed with two units of CTPS-B (2x250 MW) generating station as participating generator and connected loads at CTPS, Putki, Biada, Nimiaghata & Patherdih. The estimated off-peak and peak load in the proposed islanding system is 280 MW & 420 MW respectively. ➢ The islanding frequency for CTPS-B islanding system was decided as 48.4 Hz.	In the 196th OCC meeting, DVC representative submitted that the work is expected to be completed as per the given timeline.	-
	2.3. <u>IB-TPS Islanding Scheme:</u> The scheme was finalized in the special Meeting on Islanding Scheme of IB-TPS held at ERPC, Kolkata on 12th December 2018. In special meeting held on 06.08.2021, OPGC representative informed that work order had been placed on OEM (M/s BHEL) for implementation of the Islanding scheme at IB TPS units.	In the 197th OCC meeting, OPGC representative was not present during the discussion. OPTCL representative submitted that the details would be shared shortly. Representative of OPGC informed that during AOH in the month of March'2023 if the turbine vibration issue gets resolved then they would go ahead with the testing.	-

	OPGC was also advised to take up the issue with their highest authority as well as with the OEM for expediting the implementation of islanding scheme.		
3.	**Reliable Power Supply to Lalmatia/Godda/Dumka areas of JUSNL** **4.1. Restoration of 220kV Farraka-Lalmatia S/C line** The 220 kV Farakka-Lalmatia S/C was out of service since April 2021 due to tower collapse. The 220/132/33 kV Lalmatia substation is relying on only 132 kV lines. At present the local load at 220 kV Dumka and Godda S/S were being radially fed from 400/220 kV Maithon S/S through 220 kV Maithon-Dumka D/C and 220 kV Dumka-Godda D/C.	In the 197th OCC meeting, OCC referred the agenda to the upcoming 47th TCC & ERPC meetings. Member from JUSNL informed that the work order had already been placed to M/s ABN Tower on 08.09.2022. The delay in starting the work is due to very old transmission line and non-availability of drawing with BOM. Drawing has been made available by NTPC on 24.09.2022 without BOM. BOM is being prepared and breaking of foundation and stub strengthening work has been started. Tower erection and stringing work is likely to start by 15.01.2022 and may be completed by 31.03.2023.	-
4.	**Outage of Important Transmission System** **1. 132kV Sagbari–Melli.** Sikkim vide mail dated 09.06.2021 updated the following status: 1) In loc 82,83 & 84 we have low ground clearance which need hill cutting but if needed TL can be charged after putting temporarily barbed wire fencing. 2) In loc 98-99 a house had been constructed just below the line and warning had been issued to the owner for not to do vertical extension of the house till any such arrangement is made. 3) In loc 116 &117 land owner demanding for intermediate tower and not allowing for us to clear the jungles. 4) Loc 128 is in dilapidated condition due to sinking effect posing threat to lives and properties.	In the 196th OCC Meeting, representative of Sikkim briefly explained the issue and highlighted the reasons behind delaying of the project. He submitted that the expected timeline for restoration is November'2022	*Sikkim representative was not present during the discussion.*

	Local public are asking to shift the tower in safe place before restoration of supply in the TL. 5) 80% of jungle clearance has been completed and remaining 20% is in Forest area most of it is under west district and waiting for permission from Forest department. 6) The delay in obtaining permission for following trees in forest land is that it cannot be ascertained whether FCA clearance during construction of TL was obtained as the record is not available either in power department or in DFO Office. Regarding this it had been told by ERPC that once obtaining environment clearance at the time of construction there need not to take permission for further clearance of ROW from Forest dept and this matter is been conveyed to the Forest department but they informed us as per Forest Act of Sikkim state permission has to be obtained for fresh felling with payment of compensation. File for approval is being send to conservator of Forest from DFO on 10/6/2021.		
5.	**Status of North Karanpura NTPC Generating Station (3 X 660 MW) along with associated transmission elements.** At the 188th OCC Meeting held on 10-03-2022, it was informed that the North Karanpura unit of NTPC is planned to be synchronized by March 2022 and the Patratu unit is scheduled to be commissioned in March 2024. All India's demand is increasing by leaps and bounds, and so does the Eastern Region's demand. The synchronization of North Karanpura will help a lot of all the beneficiaries, and Jharkhand in particular. Before synchronizing the North Karanpura unit, establishing ISTS connectivity is required. It seems the respective bays at Chandwa and North Karanpura owned by PGCIL and NTPC, respectively, are already ready to charge, but the lines owned by NKTL are not ready yet. As per communication with NKTL dated 09-09-2022, it was informed that the 400 kV	In the 196th OCC meeting, NTPC representative submitted that coal synchronization (up to base load) and synchronized production at coal mines had started from 21st November 2022. The trial operations would be started within January 2023. CoD of Barh unit-2 would be done in the month of January 2023.	*NTPC representative submitted that for North Karanpura full load had been achieved in the last week. The trial operations are expected in the month of January 2023.* *CoD of Barh unit-2 would be delayed due to some issues in CHP package.* *The CoD would be done before 31st March 2023.*

	North Karanpura (NTPC)-Chandwa (PGCIL) D/C is expected to be first time charged soon. The following status was received: the total scope was 115 towers. This line has had 100% of its foundation and erection activity completed, with 29 kilometres of stringing completed out of a total of 38 kilometres, leaving only nine kilometres to go. Owing to continuous rain and poor weather conditions, progress at the site is being impeded. NKTL is putting their best efforts against all odds and is targeting mechanical completion by September's end. Once ISTS connectivity is established, NTPC may provide an update on the drawal of start-up power for each unit and its duration. Further, after the unit synchronization, the infirm power injection duration and tentative date of COD may be updated. Furthermore, present drawing of start-up power and construction power from the DISCOM, as well as the status of all testing activities may also be updated.		
6.	**<u>Ensuring N-1 reliability criteria at 400/220 KV Subhashgram (PG) S/s.</u>** The reliability issue of Subhasgram (PG) was discussed in the 46th TCC and ERPC meeting. In the meeting it was deliberated that there is an urgent requirement for installation of 6th 400/220kV, 500 MVA ICT at Subhasgram (Powergrid) S/s. On request of West Bengal, CESC agreed to bear the cost associated with the installation of the said ICT and its future maintenance. Further, CESC requested Powergrid to execute the project on deposit work basis. In the 194th OCC meeting, Powergrid representative submitted that decision in this regard would be taken by their corporate office and they would submit the details as and when it is received. ERLDC suggested Powergrid for applying requisition of shutdown regarding implementation of SPS scheme. However, no shutdown request has been received by ERLDC till date.	In the 197th OCC meeting, Powergrid representative submitted that cost estimate of ICT has been done and the remaining modalities would be conveyed by the end of November 2022.	*Powergrid representative submitted that the revised cost estimate has been approved and necessary communication would be done with CESC by the end of December 2022.*

7.	**<u>Construction of 2 Lane Bridge across River Kosi along with approach road from Bheja to Bakaur section of NH-527A (Design Chainage Km 0+000 to Km 13+300) under BRT scheme of Bharatmala Pariyojana Phase-I (in the state of Bihar on EPC mode. -Outage of relocation/height raising of 400 KV DC Kishanganj-Darbhanga Tower no. 402 & 403</u>.** A Bridge across River Kosi along with approach road from Bheja to Bakaur section of NH-527A having a length of 13.3 km is being developed between Bheja- Bakaur The said project is a high-end priority project of Government of India which is being developed for connectivity over Kosi river with 10.2 km longest River Bridge, which is one of the longest river bridges in the Country. It is intimated that there is a 400kV Kishanganj-Darbhanga (DC line) is falling in the main carriageway of NH-527A at Bheja to Bakaur under Construction Bridge which is required to be relocated. The estimate for the said li ne has already been received from Adani transmissions vide letter under reference Amounting to Rs. 77, 67, 76,805.00 / - which includes Rs.13,56,24,508.00 towards transmission availability loss. M/s ALTL vide Letter dated 22.02.2022 had submitted that transmission loss charges amounting to Rs. 13,56,24,508. 00 for outage for 25 days is to be deposited by NHAI for shifting the above-mentioned line. Further, in aforementioned letter M/s. Adani transmissions informed that the payment against the loss due to transmission availability loss (Rs. 13,56,24,508.00) shall be refunded by Alipurduar Transmission Limited to NHAI subject to deemed availability certificate issued by Eastern Regional Power corporation to the transmission company. In this regard, it may be noted that the payment against the loss due to	In the 197th OCC meeting, It was informed that detailed bar chart of works to be carried out has been submitted by ATL wherein they have requested for shutdown for 25 days. OCC was of the view that communication may be done with ATL regarding submission of a presentation to ERPC regarding this matter.	*ATL representative delivered a brief presentation on the issue citing that Deemed Availability during the shutdown period 25 days of would be required.* *OCC approved.*

	transmission availability loss claimed by M/s, Adani transmissions are huge and the project being implemented under EPC mode with 100% Government funding will burden the Government budget. It may also be noted that the subject project is in its advanced stage of construction and non-shifting of said tower will adversely affect the completion of the project as it is falling in the main carriage way of the alignment. The completion of the instant project on time will be recognised as a mile stone achievement for Govt of India and will able to facilitate the Public of backward Region State of Bihar. As per para 5.3 of Ministry of Power Office Memorandum dated 16.08.2021, it is mentioned that in case of projects of national importance WWI projects), deemed availability may be given for the shut-down period availed by transmission licensees for shifting of their transmission lines, provided that transmission customers are not affected by the shutdown. In view of the above and the subject project being of National Importance, it is therefore requested to issue the necessary deemed availability certificate to Alipurduar Transmission Limited for waving off of the Transmission availability loss for the shutdown of 400kV Kishanganj - Darbhanga Line (DC li ne) for about 25 days.		
8.	**<u>Integration of (Interface Energy Meter) IEMs into SCADA/EMS system for telemetry of meter data to SLDCs.</u>** The existing SEMs are having two communication ports, which can function independently for fetching the SEM data. The optical port is being used for fetching the weekly DSM data through Common Meter Reading Instrument (CMRI), for accounting purpose. The other RS 232 port available remains unused, the online real time data can be fetched from the existing SEM through the unused RS 232 port. This arrangement does not require	In the 196th OCC meeting, Powergrid representative submitted that communication in this regard has already been done with Genus. Some details are awaited which would be shared shortly.	*Powergrid representative submitted that they would submit the report by the end of February 2023.*

	additional meters or new communication facilities and therefore no additional cost is involved.		
9.	**Status of SAMAST, ABT implementation and certification of system operators in states.** Implementation of SAMAST and ABT in all the states is a prerequisite for improving the reliability of grid considering the complexities involved in managing the large interconnected Indian grid. Further skilled, certified manpower is the key to operate the grid safely and securely. Various initiatives are being taken mutually by ERLDC and the states for successful implementation of the SAMAST/ABT in the states. The status of SAMAST, ABT implementation and certification of system operator of various states of eastern region is given below: **Name of the state** / **Status of implementation of SAMAST** / **Number of Certified Operator** **Bihar** / Completed / 4 **Jharkhand** / / Nil **Odisha** / / 11 **DVC** / / Nil **West Bengal** / / 2 **Sikkim** / / 1	In the 197th OCC meeting, ED ERLDC highlighted the need of adequate manpower at SLDCs in line with CABIL recommendations to enable the SLDCs to discharge their roles and responsibilities effectively. He added that the matter was also discussed in detail in the 46th ERPC meeting but some of the SLDCs are still running short of manpower. He further submitted that this issue would also be put up as an agenda item for the forthcoming TCC/ERPC Meeting. MS ERPC stressed on the need of furnishing details by each SLDC regarding manpower put in place against different departments/functionalities. He further stated that this would enable the proper assessment and further necessary action.	*SLDC Bihar submitted that they have provided the data.* *ERLDC representative submitted that they would host a physical meeting regarding status of SAMAST and ABT implementation.*
10.	**Erroneous reading in Rammam and Ravangla.** 1. The meter sl. No. ER-1986-A at 132 KV RAMMAM (WBSETCL) - RANGIT (NHPC) at Rammam (WB) showing reverse polarity since the meter was replaced in Jun-22. Information was already intimated to the concern but the issue is not resolved. 2. The meter sl no ER-1983-A at 66 KV RAVANGLA (SIKKIM) - RANGIT	In the 197th OCC meeting, WBSEDCL was advised to coordinate with Rammam S/s and take necessary actions in this regard. ERLDC representative submitted that they have advised Sikkim to replace the meter at 66KV Ravangla (Sikkim) – Rangit (NHPC) or take the help of Powergrid.	*WBSETCL representative submitted that they would contact with the testing department and WBSEDCL for rectification of the erroneous readings.*

	(NHPC) at Ravangla (Sikkim) end is recording erroneous values with respect to the stand-by meter. This issue has been intimated to Sikkim vide mail dated 04.08.2022 but not resolved yet.	Powergrid representative submitted that no such request has been received by Sikkim. OCC advised ERLDC to coordinate with Sikkim regarding the issues of erroneous meter reading.	
11.	**Replacement of non-functioning/defective meters** **Bihar** The AMC vendor Ms TCS visited the Kahalgaon site to restore the AMR connectivity, but it was informed that the meter was not responding. Accordingly, the same was intimated to the concern to replace the meter. 1. NP-6071-A 132 KV KAHALGAON(BSPHCL) - LALMATIA(JSEB) 2. NP-6076-A 132 KV KAHALGAON (BSPHCL) - KAHALGAON (NTPC)	In the 197th OCC meeting, ERLDC representative submitted that a team of TCS recently visited Kahalgaon after which it was decided that the meters would be replaced. Subsequent communications were made thereafter, but the meters are yet to be replaced. Bihar representative submitted that their team visited Kahalgaon site on 19th October 2022 wherein they found the meter to be in hang mode after which the meter was reset and communication was established.	*Bihar representative was not present during the discussion.* *Meter no. NP-6076-A and NP-6071-A would be replaced by the end of December 2022.*
12.	**Non-Receipt/Late Receipt of SEM data from Various Locations** As per IEGC (effective from 3.5.2010) Sub-clause-22 of Clause-6.4 (demarcation of responsibilities), all concerned utilities in whose premise's SEMs are installed shall take weekly meter readings and transmit the same to RLDC by Tuesday noon for timely issuance of Deviation account Bill. In 197th OCC, all were requested to adhere to the schedule as per IEGC. **i) Late receipt of SEM data**: ERLDC is receiving the weekly SEM data by Tuesday noon from maximum locations. However, data is received on Wednesday or later from; WBSETCL (Alipurduar, NJP, NBU), PG (Baripada, Muzaffarpur), Bihar (Goraul , Kishanganj, Baisi)		*OCC advised Powergrid to submit SEM data of Muzaffarpur and Baripada S/s on a timely basis.* *Powergrid was also advised to submit the list of charges for installation of meters.* *WBSETCL and Bihar were advised to send the relevant data within stipulated time period.* *OPTCL representative*

		ii) Non-receipt of SEM Data: ERLDC is not getting SEM data for 220 KV TTPS (GRIDCO)-TALCHER (NTPC) (NP-0553-A). This was already conveyed several times to GRIDCO & NTPC via mail as well as through telephonic conversation. The same was discussed in 197th OCC & GRIDCO agreed to replace the meter at the earliest. Although ERLDC had sent subsequent mail dated 18.11.22 in reference to the agenda point to replace the meter but no such action has been taken yet. **iii) Absence of SEM** it is difficult to validate the energy meter data due to absence of meter. some of the matters were discussed in previous OCC & ERLDC had intimated the same to respective concern via mail in reference to the agenda point but no such action has been taken till date. a. There is no meter installed at SAGBARI for 132 KV RANGIT (NHPC) - SAGBARI (SIKKIM) line, which is causing difficulty in pair-checking. b. There is no meter installed at WB end of 132 KV KOLAGHAT(DVC) - KOLAGHAT (WBSETCL). (Mail dated 18.11.22, 24.11.22 ,08.12.22) c. There is no meter installed at Jharkhand end of 132 KV CHANDIL (JSEB) - MANIQUE (DVC). (Mail dated 08.12.22, 18.11.22) d. There is no check meter installed at Kahalgaon (NTPC) end for Khalagaon (NTPC) – Durgapur (PG) D/C. Although matter was intimated to NTPC & power-grid but no such action taken till date (Mail dated 17.11.2022 & 15.12.2022) **WBSETCL, GRIDCO, Jharkhand, POWER-GRID, Sikkim & NTPC may**		*submitted that they have not received the meter from Powergrid. Moreover, since the Talcher S/s is yet to be handed over to them they are unable to carry out any maintenance activities.* *NTPC representative submitted that meter no NP-0553-A is not available either at Kaniha side or Talcher side.* *ERLDC representative submitted that as per their records meter no NP-0553-A should be available at Talcher end.* *OCC advised ERLDC to submit the details of meter to NTPC Talcher representative.* *Regarding installation of meter at WB end of 132 KV KOLAGHAT(DVC) - KOLAGHAT (WBSETCL), WBSTECL representative submitted that they have not received any mail regarding installation of meter. OCC advised WBSETCL to*

	update the status.		*install the meter and submit the status by the next OCC meeting.* *Jharkhand representative submitted that the meter would be collected by the first week of January 2023.*
13.	**<u>Ensuring healthiness of ADMS</u>**		

The performance of automatic demand management scheme (ADMS) of the states for the month of Oct-22 is detailed below:

State	**Criteria for ADMS operation**	**Number of instances for which ADMS criteria satisfied**	**Number of instances for which detail received**	**Discussion regarding previous month performance**	**Update in 198th OCC meeting**
West Bengal	1. System Frequency < 49.7 Hz 2. WB over-drawl > 150 MW 3. Delay = 4 min	Nil	1	As per information received from West Bengal SLDC, ADMS operated on 08th November,2022 19:20 hrs. during the low frequency event. But the criteria of ADMS operation did not satisfy as per ERLDC SCADA data. Hence WB SLDC is requested to share the SCADA data for 08th November,2022 for reconciliation at our end.	*ERLDC representative submitted that as per West Bengal data ADMS operated once but as per their data ADMS criteria did not fulfill.* *West Bengal was advised share the data with ERLDC.*
Jharkhand	1. System Frequency < 49.9 Hz 2. Jharkahnd over-drawl > 25 MW 3. Delay = 3 min	162	Nil		*Details from Jharkhand has been received and very less response is being obtained.*

DVC	1. System Frequency < 49.9 Hz 2. DVC over-drawl > 150 MW 3. Delay = 3 min	12	Nil		*Details are yet to be received.* *DVC representative submitted that they would submit the details by 23rd December 2022.*
Odisha	1. System Frequency < 49.9 Hz 2. Odisha over-drawl > 150 MW 3. Delay = 3 min	40	Nil		*Details from Odisha have been received but not as per the prescribed format.* *Odisha representative submitted that as per their study only 7 out of 40 instances is was satisfied. He further submitted that they would send the data as per the format shortly.*

14.	**Commissioning status of ADMS** Automatic demand management scheme (ADMS) is already commissioned in West Bengal, DVC and Jharkhand. However, for Bihar it is yet to be implemented, the last status as confirmed in the earlier meeting is as follows.	In the 197th OCC meeting, Bihar representative submitted that consent from DISCOM is still awaited and the work would be completed by the end of November 2022.	*Bihar representative submitted that some issues have been observed while testing from remote end. They have contacted with M/s Chemtrol for the resolution of the same and the meeting is scheduled by the end of December 2022.*
15.	**Connectivity of radial nodes to redundant path in Eastern Region-Daltonganj (PG)** Daltonganj is connected with single fiber	In 47th TCC Meeting, Member from JUSNL informed that the OPGW connectivity from Latehar (PG)400kV to Latehar(132kV) would be	*Jharkhand representative submitted that both the circuits have*

	path through Daltonganj-Sasaram link at present. Second path connectivity is to be planned by utilizing the state network of Daltonganj to Latehar line. Powergrid/ERLDC stated that OPGW laying from Daltonganj (PG) to Latehar (PG) (400kV) is under implementation. However, OPGW connectivity from Latehar (PG) (400kV) to Latehar(132kV) need to be confirmed from JUSNL. Further, OPGW connectivity from Latehar (132kV) to Ranchi via state links Hatia-II – Hatia-I – SLDC – Ranchi PG already exists and may be utilized for redundant path for Daltonganj (PG).	completed by December'2022. After commissioning of Latehar PG to Latehar 132kV JUSNL link, it shall also be utilized for redundant path for Daltonganj (PG). Redundant path would be Daltonganj (PG)- Latehar 400kV via Latehar132kV to Ranchi via state links Hatia II -Hatia I-SLDC-Ranchi PG.	*been connected at 132KV Latehar.*
16.	**Revised connectivity for Laxmikantpur 400/132 KV S/s and split bus arrangement at Laxmikantpur S/s** In the 2nd meeting of ERSCT held on 05-07-2019, CTU informed that the scope of works for establishment of 400/132kV New Laxmikantpur substation through LILO of Subhashgram (POWERGRID) – Haldia 400kV D/c line at New Laxmikantpur S/s under intra-state has already been approved on technical grounds by all the stakeholders including HEL and CESC (also recorded in the minutes of the meeting). HEL was requested to provide go ahead on the said scope before the next CEMTS-ER as further delays in implementation of New Laxmikantpur S/s may jeopardise reliability of power supply in Kolkata area.	In 47th TCC Meeting, TCC advised HEL to expedite the process in completing the study report and further consultation with the OEM for getting their feedback/consent. In the meantime, TCC suggested that the proposal of WBSETCL regarding an additional connectivity arrangement may be forwarded to CTU for their comment/consideration. TCC suggested that a committee may be formed under chairmanship of Director (Op) WBSETCL with members from the concerned wings of WBSETCL, HEL & ERLDC to fortnightly monitor & discuss the progress with regard to the above matter and submit to ERPC.	-
17.	**Operational challenges in Jharkhand network due to multiple long outages/tripping** In Jharkhand network, 400/220 kV 2 X 315 MVA Ranchi ICTs and 400/220 kV 2 X 315 MVA Patratu ICTs and 220 kV Tenughat-PTPS S/C were meeting the demand of Ranchi capital city.	In the 47th TCC Meeting Member from JUSNL updated the following: **400 kV/220kV 315 MVA ICT2 AT PATRATU** All necessary test of ICT-2 was conducted in which some test result was found abnormal, and manufacturer has decided for	*Jharkhand representative submitted that ICT-1 has been sent to the factory site and inspection of ICT-2 would be started shortly by the*

	At present, 400/220 kV Patratu substation both ICTs are out of service. This led to shifting of loads being fed from this substation back to Ranchi substation's ICTs. In addition, due to the outage of 220 kV Patratu-Tenughat S/C, there is no support from Tenughat (TTPS) power plant. This is leading to the entire Ranchi City demand being fed by 2X315 MVA ICTs Ranchi (PG). Presently Ranchi ICTs loading is to the tune of 160-190 MW/ICT. In this network configuration, Ranchi S/s one 315 MVA 400/220 kV ICT outage sensitivity on other ICT is more than 90%. Further degrading the overall situation is outage of 220 kV Ranchi-Hatia 2 on tower collapse. This is leading to n-1 loading violation for other two circuits i.e., 220 kV Ranchi-Hatia 1 and 3 which are loaded above more than 150 MW/ckt. **A list of major elements outages in JUSNL are provided below:** • 400 KV/220KV 315 MVA ICT 2 AT PATRATU: 27-09-2022 (DGA violation) • 400 KV/220KV 315 MVA ICT 1 AT PATRATU: 01-08-2022 (Buchholz Relay) • 220 KV/132KV 100 MVA ICT 2 AT LALMATIA: 22-01-2019 (FAILURE OF HV SIDE BREAKER) • 220 KV/132KV 100 MVA ICT 3 AT CHANDIL: 30-04-2020 (ICT failed due to fire) • 220 kV Tenughat-Patratu S/C: Under long shutdown for shifting work • 220 KV-RANCHI-HATIA-2: 24-09-2022 (Tower collapse) • 220 KV-FSTPP-LALMATIA-1: 21-04-2021 (Tower collapse)	internal inspection. All necessary arrangement has been completed and internal inspection is scheduled in the last week of Nov'22. **400kV/220kV 315MVA ICT-AT PATRATU** ICT-1 was dismantled for transportation to manufacturer site and transportation will commence by Nov'22. **220kV/132 100 MVA ICT-2 AT LALMATIA (FAILURE OF HV SIDE BREAKER)** In this regard estimate has been obtained from field, estimate is being scrutinized at Head Quarter level to get the work done with minimum cost. The expected date of completion is 31.03.2023. **220kV/132kV 100 MVA ICT-3 AT CHANDIL** In place of this ICT new ICT of 100 MVA will be procured soon. The tender is under technical evaluation stage and work order would be placed soon. The expected timeline of completion is July 2023. **220kV TENUGHAT PATRATU S/C UNDER LONG SHUTDOWN FOR SHIFTING WORK** To provide start-up power to PUVNL this line is being taken under shutdown on daily basis from 8:00 hrs to 17:00 hrs for strengthening of transmission line S/C. The work is likely to be completed by 17.12.2022. **220kV RANCHI-HATIA-2** Expected date of restoration by 30.11.2022. **220kV FSTPP-LALMATIA-1**	*end of December 2022.* *Jharkhand representative submitted that strengthening work of transmission line has been completed and the line was charged on 9th December 2022.* *220KV Ranchi-Hatia line was also charged*

			Work order had already been placed to M/s ABN Tower on 08.09.2022. The delay in starting the work is due to very old transmission line and non-availability of drawing with BOM. Drawing has been made available by NTPC on 24.09.2022 without BOM. BOM is being prepared and breaking of foundation and stub strengthening work has been started. Tower erection and stringing work is likely to start by 15.01.2022 and may be completed by 31.03.2023.	*on 13th December 2022.*

PART C: ITEMS FOR UPDATE

ITEM NO. C.1: ER Grid performance during November 2022

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month November-2022 were as follows:

Average Consumption (MU)	Maximum Consumption (MU)/ Date	Maximum Demand (MW) Date/Time	Minimum Demand (MW) Date/Time	Schedule Export (MU)	Actual Export (MU)
409.3	451.4 MU 02-11-2022	22233 MW, 01-11-2022 17:58 Hrs.	14736 MW, 28-11-2022 at 02:21 Hrs.	5799	5816

ERLDC may highlight the performance of the ER grid.

Deliberation in the meeting

ER Grid performance for the month of November 2022 was highlighted.

ITEM NO. C.2: Primary Frequency Response of generating units in ER.

The availability of sufficient primary frequency response is one of the fundamental requirements of power system operation not only from reliability point of view but also from regulatory compliance point of view. Based on the assessed FRC re-testing of primary frequency response can be recommended. Therefore, the accurate and high-resolution data from generator end is extremely important in absence of which assessment of FRC is done as per low resolution ERLDC SCADA data. The plant wise data submission statistic for frequency event flagged by ERLDC during July and August is given below:

Name of the Plant	09th July event data submission status	11th Aug event data submission status	11th Sep event data submission status	17th Sep event data submission status	15th Oct event data submission status
Adhunik	Submitted	Submitted	Submitted	Submitted	Submitted
Barh	Submitted	Submitted	Submitted	Submitted	Pending
BRBCL	Submitted	Submitted	Submitted	Submitted	Submitted
Darlipalli	Submitted	Submitted	Submitted	Submitted	Submitted
Farakka	Pending	Pending	Pending	Pending	Pending
GMR	Submitted	Submitted	Submitted	Submitted	Submitted
JITPL	Submitted	Submitted	Submitted	Submitted	Submitted
MPL	Submitted	Submitted	Submitted	Submitted	Submitted
NPGC	Submitted	Submitted	Submitted	Submitted	Submitted
Kahalgaon	Submitted	Submitted	Submitted	Submitted	Submitted
Teesta III	Submitted	Submitted	Submitted	Submitted	Submitted
Teesta V	Submitted	Submitted	Submitted	Submitted	Submitted

TSTPS	Submitted	Submitted	Submitted	Submitted	Submitted
Dikchu	Submitted	Submitted	Submitted	Submitted	Submitted

In view of the same all utilities are once again requested to kindly look into the matter and take necessary action to ensure consistent data submission for every frequency event flagged by ERLDC.

Deliberation in the meeting

OCC advised all the utilities to kindly look into the matter and take necessary action to ensure consistent data submission for every frequency event flagged by ERLDC.

ITEM NO. C.3: Review of implementation of PSDF approved projects of ER.

In 10th NPC meeting held on 09.04.2021, RPCs were advised take up the matter for improvement of the fund disbursement and expeditious implementation of the sanctioned projects under PSDF.

In view of the above, status review of the projects being executed under PSDF funding in Eastern Region would be carried out on regular basis for expediting the projects. All the constituents are requested to furnish/update the status of their respective project in every month.

Concerned utilities may update the present status of the project as given in the **Annexure-C.3**.

Respective utilities may update.

Deliberation in the meeting

OCC advised all the utilities to update the status.

ITEM NO. C.4: Status of implementation of AGC as a pilot project in States.

In 42nd TCC, DVC intimated that AGC shall be implemented in unit 7 and 8 of Mejia as per the given schedule by 31st July 2020.

WBPDCL informed that they have already collected offer from Siemens for implementation of

AGC and they are awaiting the concurrence from SLDC.

SLDC, WB informed that they are not in a position to implement AGC unless a clear direction is given by WBERC. Further, implementation of intra state DSM is a prerequisite for implementation of AGC in the states.

It was decided to request CERC to include this as an issue in the agenda for discussion in the meeting of Forum of Regulators.

OCC advised SLDC Odisha and OPGC to interact with Barh NTPC & ERLDC to get the technical specifications & the procedure for implementation of AGC.

In the 183rd OCC meeting, OPGC representative informed that work order has been issued to M/s Siemens for implementation of AGC. The work would be carried out during the unit shutdown which is scheduled from 18.10.2021.

State	Station/Unit	Deliberation in 184th OCC Meeting
DVC	Mejia unit#7 &8	DVC representative informed that NIT is to be floated.
Odisha	Unit#3 of OPGC	OPGC vide email dated 25th Oct'21 informed that some additional data is needed from SLDC Odisha and after getting the same AGC would be implemented.

In the 185th OCC meeting, DVC representative informed that the NIT for implementation of AGC will be floated by 9th December 2021.

OPGC representative was not present during the discussion.

In the 186th OCC meeting, DVC representative informed that the NIT would be floated by 31st December 2021.

In the 187th OCC meeting, OPGC and DVC representative were not present during the discussion.

In the 188th OCC meeting, DVC representative informed that NIT was floated on 29th December 2021 and the bid opening would be done on 19th February 2022.

OPGC representative was not present during the discussion.

In the 190th OCC meeting, DVC representative submitted that NIT would be re-floated due to some issues in the payment terms.

SLDC Odisha representative submitted that the order has been place to M/s Siemens for AGC implementation and the feasibility test would be conducted on 3rd May 2022.

DVC and Odisha may update.

Deliberation in the meeting

OCC advised all the units to update the status.

ITEM NO. C.5: Primary Frequency Response Testing of ISGS Generating Units

In the 180th OCC meeting, ERLDC representative informed that as per communication received form GMR and JITPL PFR testing has been scheduled by Siemens in August'21.

MPL representative submitted that they would carry out the PFR testing in the month of July'21.

In the 181st OCC meeting, ERLDC representative informed that PFR testing of MPL got postponed due to some technical issue. He further informed that PFR testing is going on in

APNRL and that of NPGC and BRBCL is scheduled in the last week of July'21 and 1st week of August'21 respectively.

In the 182nd OCC meeting, ERLDC representative submitted that During July – August 2021, PFR testing has been conducted at the following generating units:

1. Adhunik TPS Unit 1 & 2
2. BRBCL TPS Unit 2 & 3
3. Nabinagar STPS Unit 1
4. Kahalgaon STPS Unit 1

In the 183rd OCC meeting, ERLDC representative updated that PFR testing for Unit# 1 & 2 of GMR had been completed.

In the 185th OCC meeting, ERLDC representative informed that PFR testing of Dikchu is being carried out.

In the 187th OCC Meeting, OCC advised all the members to provide the updated status of PFR testing, if any, to ERPC and ERLDC.

In the 188th OCC meeting, ERLDC representative informed that updated status of PFR testing was received from MPL.

The updated status is enclosed at **Annexure-C.5**.

Members may update.

Deliberation in the meeting

OCC advised all the generating units to update the status of PFR Testing at the earliest.

ITEM NO. C.6: Testing of Primary Frequency Response of State Generating units by third party agency.

In the 171st OCC Meeting, OCC advised all the SLDC's to prepare the action plan for their state generators and submit the details to ERPC and ERLDC at the earliest.

DVC vide-mail dated 6th Oct 2020 informed that the Primary Frequency Response Testing may be carried out for the following generating units:

Sl. No.	Name of the Units	Capacity (MW)
1	BTPS-A	500
2	CTPS Unit #7&8	2X250
3	DSTPS Unit#1&2	2X500
4	KTPS Unit # 1&2	2X500
5	MTPS Unit # 3 to 8	2 X 210 +2 X 250 + 2X 500
6	RTPS Unit # 1 & 2	2 X 600

In the 185th OCC meeting, OHPC representative informed that testing of Primary Frequency Response of all the units of Rengali and Indravati will be done by the end of December 2021.

WBPDCL representative informed that they will place the order in the month of December 2021.

In the 186th OCC Meeting, OHPC representative informed that the testing of Primary Frequency Response of all the units of Rengali and Indravati would be done by the 2nd week of January 2022.

DVC representative informed that the bid opening had been done on 22nd December 2021.

In the 187th OCC meeting, OHPC and DVC representatives were not present during the discussion.

In the 188th OCC meeting, it was informed that PFR testing of all the 3 units of Budge-Budge are scheduled from 26th Feb 2022 to 3rd March 2022.

OHPC representative submitted that PFR testing of all the units of Rengali (5 units) and Indravati (4 units) would be carried out by M/s Solvina from 20th March 2022 onwards.

DVC representative informed that the work order for PFR testing has been placed.

Generating units may update.

Deliberation in the meeting

OCC advised all the state generating units to update the status of PFR Testing at the earliest.

ITEM NO. C.7: PSS tuning of Generators in Eastern Region

The PSS tuning activity is mandatory in line with IEGC and CEA regulations. The Procedure of PSS tuning for helping utilities in getting this activity carried out has been approved in 171st OCC Meeting and shared with all concerned utilities.

In the 186th OCC Meeting, Teesta –V representative informed that the PSS tuning would be conducted in the last week of January 2022.

It was informed in the OCC that PSS tuning of Rongnichu and Chuzachen had been completed.

DVC representative informed that PSS tuning of RTPS unit-1 & 2 would be done in the month of March 2022.

BRBCL representative informed that PSS tuning of BRBCL unit-1 has also been completed.

In the 187th OCC meeting, OCC advised ERLDC to send the updated status of PSS tuning to ERPC.

Power System Stabilizer (PSS) tuning is an ongoing exercise in Eastern regional grid after observation of various low frequency oscillation from time to time in the grid. In line with this,

OCC has decided that all generating plants in eastern region will submit their PSS tuning plan to ERLDC/ERPC and the test reports for validation. The list of units whose tuning is pending is attached in **Annexure C7**.

Hence all generators are requested to update the latest status.

Deliberation in the meeting

West Bengal SLDC was advised to communicate with WBPDCL regarding PSS Tuning status of PPSP units.

JITPL representative was not present during the discussion.

ERLDC representative submitted that PSS Tuning as well as PFR testing status of units of JITPL is pending.

NTPC representative submitted that they would send the PSS Tuning status of Barh units shortly.

DVC representative submitted that PSS Tuning of both units of RTPS would be completed by the end of December 2022.

OPGC representative submitted that PSS Tuning of IB TPS unit-1 would be carried out in the month of March 2023 during the Annual Overhauling.

ERLDC representative advised OPGC to carry the PSS Tuning of both the units during the Annual Overhauling of unit-1.

OHPC representative submitted that the PSS Tuning of Upper Kolab units would be carried out by the end of March 2023.

PSS Tuning of Balimela units could not be carried out due to ongoing renovation works. Further, they are in talks with M/s Hitachi, as the same is charging a huge amount for PSS Tuning of Indravati units.

ERLDC representative advised OHPC to explore the possibilities of identifying other suitable vendors for PSS Tuning from the list available with them. OCC advised ERLDC to share the list of vendors for PSS Tuning and PFR Testing with the generators.

ERLDC representative submitted that they have communicated with Bhutan regarding updating of PSS Tuning status of units.

ITEM NO. C.8: Status of UFRs healthiness installed in Eastern Region.

Members may update the status of UFR healthiness installed in Eastern Region.

Members may update.

Deliberation in the meeting

Members updated.

ITEM NO. C.9: Status of Islanding Schemes healthiness installed in Eastern Region.

As per the decision taken in the meeting held on 8th July 2021 and chaired by member (GO&D), CEA, data in prescribed formats may be submitted by concerned utilities to RPCs on monthly basis to certify the healthiness of the Islanding Schemes.

a. Format - I for RLDC/SLDCs

S.NO	Name of Islanding Scheme	Healthiness of Communication channel

b. Format - II for Generating Station

S.NO	Name of Islanding Scheme	Healthiness of Islanding Relay	Healthiness of Communication channel

c. Format - III for Transmission Utility/DISCOMs

S.NO	Name of Islanding Scheme	Elements considered for tripping to from Island	For communication-based tripping logic Of feeders	For UFR based tripping logic of feeders	
			Healthiness of Communication channel	Healthiness of PT Fuse and status of DC supply to UFR relay*	Healthiness of Relay#

* Where dedicated UFR relay have been installed for tripping of the feeders under Islanding scheme

Where UFR functions have been enabled within backup protection relay of the line.

d. Format - IV for collecting Relay details of the Islanding scheme.

The following format may be used to get Relay details of the Islanding scheme:

S.NO	Description	UFRs-for load relief (A)	df/dt -for load relief (B)	Relay for Island creation(C)
1	Relay location (S/s name)			

2	Relay make & model			
3	Frequency setting of the relay (at which load shedding is envisaged)			
4	Feeder name (voltage level and source-destination name) signaled by the Islanding Relay for separation /load shedding/separation from outside grid			
5	Quantum of load relief due to tripping of feeder (as per state's peak of previous year)			
6	Quantum of load (Min, Avg, Max in MW) on the feeder (as per state's peak of previous year)			

e. Format - V for Contact details of all Nodal Officer

Utility Name &Location	Name	Designation	Organization	Email ID	Mobile No.

It was deliberated in the 186th OCC meeting that except West Bengal all the entities are sending the report as per the new format.

In the 192nd OCC meeting, it was informed that except for West Bengal all entities are sending the report as per the new format.

Members may update.

Deliberation in the meeting

OCC advised all the members to update the status.

ITEM NO. C.10: Latest Status of States ATC/TTC declared by States for the month of January-2023.

To harmonize the ATC/TTC calculation methodology and timeline One to one meeting and hands on training with each SLDC was conducted in the month of Sep-21 and Oct-21. As per the common agreed procedure and timeline ATC/TTC calculation in three months advance

and reconciliation of the TTC/ATC figure for the upcoming month between RLDC and SLDC has started from month Dec-21. Reconciled ATC/TTC figures for **January-2023** are as follows:

As per the agreed philosophy the status of month wise ATC/TTC submission is as follows:

Sl No	State/Utility	TTC (MW)		RM(MW)		ATC Import (MW)		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	5918	--	118	--	5800	--	Jan-23
2	JUSNL	1530	--	52	--	1478	--	Nov-22
3	DVC	1788	3490	68	53	1720	3437	Jan-23
4	OPTCL	4319	1884	127	60	4192	1824	Jan-23
5	WBSETCL	6522	--	450	--	6072	--	Jan-23
6	Sikkim	167.81	--	2.66	--	165.15	--	Nov-22

As per the agreed philosophy the status of month wise ATC/TTC submission is as follows:

State / Month	Bihar	Jharkhand	DVC	Odisha	West Bengal	Sikkim
Dec-22	Submitted	Pending	Submitted	Submitted	Submitted	Pending
Jan-23	Submitted	Pending	Submitted	Submitted	Submitted	Pending
Feb-23	Submitted	Pending	Submitted	Submitted	Submitted	Pending
March-23	Submitted	Pending	Submitted	Submitted	Submitted	Pending
April-23	Pending	Pending	Pending	Pending	Pending	Pending

Declaration of TTC/ATC on SLDC Website:

Sl No	SLDC	Declared on Website	Website Link	Constraint Available on Website	Type of Website Link
1	BSPTCL	Yes	http://www.bsptcl.in/ViewATCTTCWeb.aspx?GL=12&PL=10	Yes	Static Link-Table
2	JUSNL	Yes	http://www.jusnl.in/pdf/download/ttc_atc_nov_2020.pdf	Yes	Static link – pdf file
3	DVC	Yes	https://application.dvc.gov.in/CLD/atcttcmenu.jsp#	Yes	Static Link-Word file

4	OPTCL	Yes	https://www.sldcorissa.org.in/TTC_ATC.aspx	Yes	Static Link-pdf file
5	WBSETCL	Yes	http://www.wbsldc.in/atc-ttc	No (Not updating)	Static Link-Table
6	Sikkim	No	https://power.sikkim.gov.in/atc-and-ttc	No (Not updating)	Static Link-Excel file

All the states having net export schedule should declare their export TTC. In view of the same West Bengal is once again requested to share export TTC. Jharkhand and Sikkim are requested to share the ATC/TTC on regular basis.

Deliberation in the meeting

Jharkhand was advised to updated the status of ATC/TTC figures with ERLDC at the earliest.

ITEM NO. C.11: Mock Black start exercises in Eastern Region

As per IEGC Clause 5.8(b), Mock trial runs of the procedure for different subsystems shall be carried out by the Users/CTU/STU at least once every six months under intimation to the RLDC. Accordingly, the Black Start Schedule of different hydro stations for 2022-23 are given below:

Sl No	Name of Hydro Station	Schedule of Mock Black Start	Actual Date of Test	Schedule of Mock Black Start	Actual Date of Test
		Test-1		Test-2	
1	U. Kolab	June-2022	21st July-2022	Jan-2023	
2	Balimela	July-2022	09th Sep-2022	Feb-2023	
3	Rengali	June-2022	27- June-2022	Dec-2022	
4	Burla	July-2022	23-June-2022	Jan-2023	
5	U. Indravati	May-2022	25-May-2022	Feb-2023	
6	Maithon	DVC representative submitted that upgradation work is under progress due to issues in the governing system. Detailed timeline would be submitted to ERPC and ERLDC. Detail timeline yet to be received from DVC SLDC		Dec-2022	

7	TLDP-III	Oct-2022		Jan-2023	
8	TLDP-IV	Oct-2022		Feb-2023	
9	Subarnarekha	Sep-2022		Dec-2022	
10	Teesta-V	Oct-2022		Jan-2023	
11	Chuzachen	Oct-2022		Feb-2023	
12	Teesta-III	April-2022	08-April-2022	Dec-2022	
13	Jorethang	Oct-2022		Jan-2023	
14	Tasheding	Oct-2022		Feb-2023	
15	Dikchu	Oct-2022		Dec-2022	
16	Rongnichu	Oct-2022		Jan-2023	

- Note:

*DVC representative submitted that upgradation work is under progress due to issues in the governing system. Detailed timeline would be submitted to ERPC and ERLDC. Detail timeline yet to be received from DVC SLDC.

**Jorethang intimated that Black Start provision is not incorporated in Jorethang HEP System

It is proposed that in case Mock black start is not feasible at Maithon HEP and Jorethang HEP, they may be deleted from this list for tracking.

Further all the generators are requested to express their readiness and provide the tentative date of mock black start exercise for the year 2022-23.

In the 197th OCC meeting OCC advised all the utilities to update the status of Mock Black Start exercise, if any, to ERPC and ERLDC. Jharkhand SLDC has intimated that mock black start exercise of Subarnarekha HEP is scheduled on 13.12.2022. However, no detail has been received from others yet.

Members may update.

Deliberation in the meeting

OCC advised all the utilities to update the status, if any, to ERLDC at the earliest.

ITEM NO. C.12: Requirement of cold spares for ICTs in Eastern Region to meet any exigency.

As per CEA guidelines for availability of spares and inventories for power transmission system (transmission lines & substation/switchyard) assets, adequate cold spare for ICTs has to be maintained at regional as well as state level. Key guidelines for determining spare as per the guidelines are provided below:

- At present PGCIL along with multiple ISTS licensee is operating and maintaining most of the Inter-State Transmission System (ISTS) assets The transmission lines of above power utilities are spread across more than one states in the country.

- Regional level spare: For regional power utilities (PGCIL & Transmission licensees), the spare at regional level would be required for these assets. These spares should be increased, optimized and limited to double the quantities mentioned for State Level based on transmission line assets in that region in order to avoid unnecessary storage of

inventories.

- State level spare: The spares at 'State level' can be maintained at a centralized location which could be conveniently accessed to meet the emergency requirement of various substations/switchyards spread across the State.

- Requirement of state level: ICT and Shunt Reactor: One number single phase/three-phase unit of each rating, as applicable

- Utility for State level spare: If there are five or more substations/switchyards (of same voltage class) of a utility in a State, the 'State Level' spares shall be maintained by the utility.

- Spare at state level by utility having spread in different states: If any utility has five or more substations/switchyards (of same voltage class) spread across different States, spare recommended for 'State Level' shall be maintained for these cluster of substations/switchyards at one or more appropriate locations in any of these States.

- Higher spare for areas having higher probability of damage with natural disaster events: The quantities of spares specified shall be applicable to transmission lines and substations / switchyards in all areas including cyclone / whirlwind / tornado prone areas. However, higher quantity of spares (for some spare items) shall be kept for cyclone / whirlwind / tornado prone areas as indicated in guideline.

- Support between utilities for sharing of spare and associated commercial mechanism: There may be cases, where the extent of damage is so much that specified minimum quantum of spares/inventories may be inadequate in meeting the eventuality. In such cases, support from central power utilities (PGCIL/NTPC/DVC etc.)/transmission licensees/neighboring State utilities may be requested. The financial modalities for providing spares to other utility shall be mutually decided between the utilities.

- Replenishment of Consumed spare: Replenishment of the consumed mandatory spares shall be made at the earliest but in any case, not later than six months from the date of its consumption depending on the criticality of equipment component/material.

With a significant rise in state demands and regional demand along with the number of ICTs, it would be desirable to have an adequate spare to improve reliability and resilience in case of any exigency. Recently, a substantial delay in restoration of damaged ICTs in eastern region has been observed.

Thus, maintaining adequate regional and state level cold spare is important. Table 1-4 provides various details for deciding the requirement of regional and state level cold spare in Eastern region

Table 1: State wise ICTs at various voltages in ER

State Wise ICT	315 MVA 400/220 kV	500 MVA 400/220 kV	315 MVA 400/132 kV	200 MVA 400/132 kV	270 MVA 400/132 kV	250 MVA 400/220 kV	1500 MVA 765/400 kV	255 MVA 765/132 kV	Cold Spare Availability
Bihar	6	27	3	15			5		
Jharkhand	15	6				1	2		
Sikkim	5				1				

Odisha	30	5					8	2	
West Bengal	38	5					4		

Table 2: Utility wise ICTs detail at various voltage level in ER

Utility	315 MVA 400/220 kV	500 MVA 400/220 kV	315 MVA 400/132 kV	200 MVA 400/132 kV	270 MVA 400/132 kV	250 MVA 400/220 kV	1500 MVA 765/400 kV	255 MVA 765/132 kV	Cold Spare Availability
PGCIL	47	27	3				15		
Other ISTS (NKTL, PMJTL, PMTL, DMTCL)		8		2			4		
IPP (Dikchu)					1				
NTPC/NPGC/BRBCL	4			9				2	
WBSETCL/WBPDCL/CESC	22			4					
OPTCL/SEL	11	2							
DVC	10								
BGCL		4							
JUSNL/TTPS		2				1			

Table 3: Utility wise number of substations with ICTs in ER

Utility Substation with ICTs	Number of Substation
PGCIL ERTS 1	15
PGCIL ERST 2	8
PGCIL Odisha	10
WBSETCL	5
WBPDCL	2
OPTCL	5
BGCL	2
DVC	5
JUSNL	1
ISTS (NKTL/DMTCL/PMTL/PMJTL)	7
NTPC	7

Table 4: Spread of substations of various utilities in different states

State	PGCIL ERTS 1	PGCIL ERTS 2	PGCIL Odisha	DVC	WBSETCL	OPTCL	Other ISTS	BGCL	JUSNL	NTPC	Others
Bihar	9						4	2		4	
Jharkhand	6			3			1		1		
Sikkim		1									
Odisha			10			5				2	1
West Bengal		6		2 + 1 (MTPS)	5		2			1	2

In the 192nd OCC meeting, ERLDC representative submitted that as per the CEA guidelines, maintenance of adequate spares at State level as well as at regional level had to be ensured.

ERPC representative submitted that as per the CEA guidelines, the inventory of spares should be digitized and reports of the same should be submitted to CEA on half-yearly basis.

OCC advised all the states to digitize the inventory of spares and submit the report to CEA with a copy to ERPC on half yearly basis.

Further, ERLDC was advised to make a standard format mentioning the date of procurement of ICTs, date of COD of ICTs, declared age of ICTs, remaining life etc and circulate among the concerned utilities.

OCC advised all the concerned utilities to follow the guidelines and submit the report on availability of spares ERPC and ERLDC at the earliest.

Further, Powergrid representative raised a concern regarding diverting the spares from ISTS pool to the states which may pose reliability issues and thereby requested the states to maintain a pool for cold spare ICTs.

MS, ERPC was of the view that the pool of cold spare ICTs may be maintained by a central agency like Powergrid. In case of any requirement of spare ICT on emergency basis by any utility, the same may be provided and the commercial modalities may be decided mutually. Further, to avoid any reliability issues arising out of insufficient spares for the existing ISTS systems, the required optimum number of cold spare ICTs to be maintained by Powergrid may be enhanced which may be put up for approval subsequently.

In the 193rd OCC meeting, Powergrid Odisha representative submitted that 500 MVA and 160 MVA ICT are under procurement which would be placed at Pandiabili and Baripada S/s respectively and cater to the requirement of Odisha. A 315 MVA ICT was recently used in Jeypore S/s. After detailed cost benefit analysis, decision regarding procurement of 315 MVA ICT would be approved.

Powergrid ER-II representative submitted that a 500 MVA ICT is under procurement which would be located at Maithon or Subhashgram. 315 MVA spare ICT (released after augmentation) is available at Durgapur and Malda S/s. one 160 MVA spare ICT is available at Siliguri and one 50MVA ICT was available at Gangtok which was used recently.

Powergrid ER-I representative submitted that regional spare is available at Jamshedpur and Biharshariff S/s. The spare available at Jamshedpur was utilized at Chaibasa. One 315 MVA spare is available at Mujaffarpur S/s. one 160 MVA spare ICT of 220/132 KV is available at Purnea. Further, approval has been taken regarding procurement of one 500 MVA and one 160 MVA spare ICT at Pusauli and Daltonganj respectively.

OPTCL representative submitted that a 315 MVA spare ICT was available at Duburi S/s which was utilized in Meramundali S/s. Procurement of one 500 MVA spare ICT is under progress which would be located at new Duburi S/s. One 500 MVA ICT is available at Meramundali B. Regarding 315 MVA spare ICT, discussions are going on for procuring the same.

SLDC DVC representative submitted that one 315 MVA ICT would be replaced by 500 MVA ICT which would be kept as spare and will be located at Ramkanali S/s.

OCC was of the view that a detailed representation highlighting the ICTs under procurement and ICTs available at present would be prepared by ERLDC, based on which decision regarding maintaining pool of spares and procurement of spares would be anticipated.

Present Situation of spare ICTS as per update in 193rd OCC Meeting

Utility	500 MVA 400/220 kV	315 MVA 400/220 kV	160 MVA 220/132 kV
PGCIL ERTS 1	1: Under procurement; will be put at Sasaram	1: Muzaffarpur (released with ICT upgradation)	1: Purnea 1: Daltonganj

		1: Bihar Sharif 1 : Under Procurement	
PGCIL ERTS 2	1 : Under procurement will be put at either Malda or Shubhasgram	1 : Malda (released with ICT upgradation) 1: Durgapur (released with ICT upgradation)	1 : Silliguri
PGCIL Odisha	1: Under procurement and will be put at Pandiabili	1: Will be procured	1 : Baripada
OPTCL	1: Under procurement	Under discussion with management	Not available
DVC	Not available	1 will be spare in future as per new approved plan	Not available
WBSETCL	No detail	No detail	Not available

- **For 43 numbers of 400/220 kV 500 MVA ICTs:** 3 regional and 1 state spare are under procurement

- **For 94 numbers of 400/220 kV 315 MVA ICTs:** 3 old and 1 new is available and 2 are under procurement

- **For 220/132 kV 160 MVA ICTs:** 4 regional spares are available.

Members are requested to update the status regularly.

Deliberation in the meeting

OCC advised all the members to update the status on a regular basis with ERLDC.

ITEM NO. C.13: Availability of ERS in the Eastern Region and update on the status by various utilities including inter-state and intra-state transmission licensees

In line with CEA guidelines for the availability of spares and inventories for power transmission system (transmission lines & substation/switchyard) assets 2020 and the CEA disaster management plan for power sector 2021, adequate ERS is required to be maintained in ER grid for early restoration of transmission line due to any tower collapse. The Eastern region is prone to cyclones, Norwester/Kalbaisakhi localized storms, hilly terrain with landslides, floods, changes in river course, substation flooding, etc. due to which each year tower collapse occurs causing forced outages of transmission lines. This necessitates adequate ERS maintenance by various utilities in the eastern region for early restoration.

Present status available at ERLDC on ERS as collected during cyclone Yaas in 2021 is provided in the attached table. All transmission utilities are requested to kindly update the ERS availability and any ERS which are already engaged.

Status Update by: PGCIL ERTS 1, PGCIL ERST 2, PGCIL Odisha, WBSETCL and OPTCL (if any ERS is already engaged then same may be put as remarks)

Utility to provide details of available ERS in the attached format:

- State-level: BSPTCL, BGCL, DVC, JUSNL, Sikkim power department (SPD)
- ISTS: Indigrid (OGPTL, PKTCL, ENICL), PGCIL Subsidiaries (CBPTCL, PMTL, PMJTL), Powerlink Transmission limited (PTL), DMTCL, Adani transmission (ATL, NKTL), TPTL

In the 192nd OCC meeting, TPTL representative submitted that they would provide the details by the end of June 2022.

DVC representative submitted that procurement of 7 nos. (Combination of suspension and tension) of ERS is under progress. Further, pile and structures (2 nos.) at Putki and Maithon are available as immediate remedial measures up to 220 KV level.

West Bengal representative submitted that 10 nos. of ERS towers which can be used at all levels are available out of which 6 nos. have been used. Of the remaining, 3 nos. are tension towers and 1 is suspension tower.

OPTCL representative submitted that they would provide the details shortly.

JUSNL representative submitted that 8 nos. of ERS are available which could be used for up to 220 KV levels.

Bihar representative submitted that 36 nos. of ERS (for 220 KV and 132 KV level) are available and all are engaged at present.

The details have been received from OPTCL, PGCIL ERTS-1, ATL, PGCIL Odisha, PGCIL ERTS-2, PTL, ENICL, OGPTL, PKTCL. The details are awaited from WBSETCL, TPTL, BSPTCL, JUSNL and Sikkim Power Department. The utilities are requested to share the details at the earliest.

Present status available at ERLDC on ERS as collected during July 2022 is provided in the attached table.

Sl	**Utility**	**voltage levels**	**Number of ERS towers available**	**Location of ERS situated**	**Type of ERS (Suspension/ Tension/ any other)**
1	OPTCL	400 kV	14	Mancheswar Grid - 4 nos. (Hitech)	Can be used for both suspension and Tension
				Mancheswar store - 8 nos. (Hitech)	
				Mancheswar store - 2 nos. (Lindsey)	
			18 (Newly procured)	Mancheswar store - 18 nos. (Hitech)	
		220 kV	42	Budhipadar - 14 nos. (Lindsey)	

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
				Mancheswar grid – 14 Nos. (Lindsey)	
				Chatrapur - 14 nos. (Lindsey)	
2	PGCIL ERTS 1	765 kV -24 sets	24 Sets	GAYA	15 Suspension & 9 Tension tower
		400 KV -30 sets	30 Sets	Jamshedpur, Purnea, Lakhisarai	Total 20 nos. Suspension & 10 nos. Tension ERS towers
3	Adani transmission limited (ATL)	400 KV	1 set (12 Column). Nos of ERS towers shall depend on line configuration, type of tower and extension of towers. Approximate 6 suspension towers/ set for 400kV D/C twin conductor.	Central India (Koradi, Maharashtra)- **48 Hours**	Modular aluminum guyed towers- Suspension tower
4	PGCIL (Odisha)	400 KV ERS - 3	3	Rourkela	Suspension - 2 & Tension-1
		765 KV ERS - 24	24	Rengali	Suspension - 15 & Tension-9
5	PGCIL ERTS 2	400 KV	1 Set (consisting of 10 towers) - 400 KV Voltage level	Durgapur	7 Set-Suspension 03 Set-Tension

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
6	WBSETCL	400, 220, 132 kV	05+05set (can be used with 400/220/132 kV level) 6 used for Durgapur - asansol line diversion. 4 available	at Arambagh & Gokarno	Can be used for both suspension and Tension
7	TPTL		MoU with PGCIL Tie up with Supreme Industry in progress	-	-
8	CBPTCL		No ERS	PTC does not own any ERS, however, in case of any such requirement for deployment of ERS, CPTC has an existing agreement with POWERGRID for deployment of ERS.	-
9	PMTL	-	No ERS	-	-
10	PMJTL	765 kV	NO ERS	-	-
11	PTL	400 kV	07 towers set ERS structures suitable for Twin Moose Configuration 400 or 220 kV.	Siliguri (W.B.)	Lindsey Manufacturing Company Ltd USA Model 600
			07 towers set ERS structures suitable for Twin Moose Configuration 400	Muzaffarpur (Bihar)ER1	

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
			or 220 kV.		
12	Indigrid (ENICL, OGPTL & PKTCL)	400 KV & 765 KV Line	765 KV- 6 Sets / 400 KV- 8 Sets	Siliguri, WB.	For 765 KV- 4 Suspension & 2 Tension. For 400 KV- 6 Suspension & 2 Tension.
13	DMTCL	400 kV Lines	Arrangement of ERS with M/s Supreme Engineering at Kolkata.	Can be Dispatched in 2–3-weeks periods	-
14	BSPTCL	220 kV & 132 kV	38 ERS which can be used for 220 and 132 kV	18 Towers in use for 132 kV Kishanganj-Barsoi ckt 4 towers for 220 kv BTPS-Hazipur ckt 4 towers for 220 kV Bodhgaya- Chandauti Purnea : 1 Dehri on sone: 2 Sultanganj: 2 Fatuah: 2 Muzaffarpur : 4	Can be used for both suspension and Tension
15	BGCL	-	No ERS	No ERS	-
16	JUSNL	220 kV	Total 8 ERS	Hatia: 3 Jamshedpur: 2 Dumka: 3	Details awaited

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
17	DVC	400 kV and 220 kV	400 kV: 7 (under procurement) 220 kV: 2 set Pilon structure	400 kV: **Under procurement** 220 kV: 1 at putki and 1 at Maithon	-
18	Sikkim Power Department		Details awaited	Details awaited	Details awaited

In the 193rd OCC meeting, TPTL representative submitted that they do not have any ERS towers of their own. In this regard, a MoU with PGCIL is there.

WBSETCL representative submitted that 10 nos. of ERS towers are available which could be used at all the voltage levels. Out of 10 nos., 6 nos. are used for Durgapur-Asansol line and 4 nos. are available. Procurement of additional 6 nos. of ERS towers (which could be used both under suspension and tension) is under planning stage.

Bihar representative submitted the status of ERS towers which is mentioned below.

Location	Status	Usage	Type	Quantity
Kishanganj-Barsoi Line	engaged	220/132 KV	Suspension/Tension	18
BTPS-Hajipur Line	engaged	220/132 KV	Suspension/Tension	4
Bodh Gaya-Chandauti	to be engaged	220/132 KV	Suspension/Tension	4
Purnea	**Spare**	220/132 KV	Suspension/Tension	**1**
Dehri	**Spare**	220/132 KV	Suspension/Tension	**2**
Fatuha	**Spare**	220/132 KV	Suspension/Tension	**3**
Mujaffarpur	**Spare**	220/132 KV	Suspension/Tension	**4**
Sultanganj	**Spare**	220/132 KV	Suspension/Tension	**2**
Total				**38**

OCC was of the view that many lines of BGCL and other new sub-stations like Mokama, Hajipur, etc. in Bihar fall under the coverage of river corridor and advised Bihar to keep provisions of ERS towers for those lines.

Members may update.

Deliberation in the meeting

OCC advised all the utilities to update the status, if any, at the earliest.

ITEM NO. C.14: List of lines of Eastern Region violating N-1 security criteria.

The list of such lines for which necessary planning needs to be done to make the system N-1 secure are given below:

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
Transmission Constraint in Odisha Network				
1	i. 220 kV Budhipadar-Lapanga D/C, ii. 220 kV Budhipadar Vedanta D/C iii. 220 kV Rourkela-Tarkera D/C	SPS available only for 220 kV Rourkela-Tarkera D/C. However, even with SPS N-1 criteria is not satisfied for all the conditions. **Action Required**:- Load trimming scheme needs to be planned	1. Reconductoring of 220 kV Rourkela-Tarkera D/C with HTLS. 2. 220 kV Rourkela-Tarkera second D/C 3. Shifting of Vedanta from 220 kV to 400 kV	**OPTCL to provide a target date for Long term measures**
2	i. 220 kV Lapanga-Katapalli D/C , ii. 220 kV Katapali-New Bargarh-Sadepalli (New Bolangir) S/C iii. 220 kV Katapali-Bolangir (PG)- S/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	Odisha to share long-term remedial action to make the system N-1 secure.	**OPTCL to provide a target date for Long term measures**
Transmission Constraint in West Bengal Network				

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
3	i. 220 kV Waria-Bidhan Nagar D/C ii. 220 kV Waria-Mejia D/C	Opening of 220 kV Waria-Bidhan Nagar D/C as and when required	400/220kV, 315MVA (3rd) ICT at Bidhannagar	Target Date 2022-23. **WBSETCL may update the present Status**
		Transmission Constraint in DVC Network		
4	**i. 220 kV DSTPS-Waria D/C***	No SPS is Available. **Action Required:-** SOP/SPS/Load trimming scheme needs to be planned for the time being	i. 220 kV Connectivity at 400 kV Mejia-B ii. LILO of 220 kV Mejia-A and Barjora at Mejia-B	**DVC may update the target date**
5	ii. 220 kV Maithon-Dhanbad D/C, iii. 220 kV Maithon-Kalyaneshwari D/C	No SPS is Available. **Action Required:-** SOP/SPS/Load trimming scheme needs to be planned for the time being	iii. 220 kV Connectivity at 400 kV Mejia-B iv. 220 kV Connectivity at 400 kV RTPS	**DVC may update the target date**
*** The N-1 violation of 220 kV DSTPS- Waria D/C or DSTPS ICT 1&2 may result in large-scale disturbance, impacting an area between Durgapur and Maithon. To avoid any such mishap DVC needs to plan and implement an SPS on an urgent basis. Further, the long term measure also needs to be implemented in time bound manner.**				
		Transmission Constraint in Jharkhand Network		
6	220 kV Maithon Dumka D/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	i. LILO of 1st circuit of 220kV Dumka – Govindpur D/c line at Dhanbad	Target Date 2023. **Jharkhand may update the target date**
		Transmission Constraint in West Bengal Network		
6	i. 220 kV Rajarhat-Newtown AA3 D/C, ii. 220 kV Subhasgra	SPS is Available for both the Ckts	1. 220 kV Rajarhat-Newtown AA3 D/C line with HTLS. 2. No Strenthing planned for 220 kV Subhasgram-EMSS D/C	1. Target Date November 2022 for recondutoring **WBSETCL may update the present Status**

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
	m-EMSS D/C			
7	i. 220 kV Subhasgram (PG) – Subhasgram (WB) D/C ii. 220 kV Subhasgram (WB)-Lakshmikantpur D/C	SPS Available for 220 kV Subhasgram (PG) – Subhasgram (WB) D/C	i. 220 kV Subshagram – Baruipur D/C ii. 400/132 kV Substation at Lakshimikantpur.	i. Line antitheft charged from Subhasgram end ii. Lakshimikantpur tareget date is December 2024 **WBSETCL may update the present Status**
Transmission Constraint in Bihar Network				
8.	220 kV Darbhanga-Darbhanga(BH) D/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	Bihar to share long-term remedial action to make the system N-1 secure.	**Bihar to provide a target date for Long term measures**
9.	220 kV Muzzafarpur-Hazipur D/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	1. 220 kV Muzzafarpur-Amnour D/C	**Bihar to provide a target date for Long term measures**
10.	220 kV Gaya Bodhgaya D/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	1. 220 kV Gaya Bodhgaya Second D/C	**Bihar to provide a target date for Long term measures**

In the 193rd OCC meeting, ERLDC representative submitted that outage of DSTPC ICTs or DSTPS Waria D/C line may create a large scale disturbance.

DVC representative submitted that the contracts for connectivity between MTPS 220 KV to 400 KV and RTPS connectivity have already been awarded and the work is expected to be completed by December 2023. The 400 KV bus connectivity would extend some relief in case of evacuation problem from 220 KV bus due to MTPS generation.

Under long-term measures, programs for augmentation of DSTPS ICT and DSTPS-DTPS HTLS is under progress. Necessary approval from ERPC and CTU has already been taken in this

regard.

Moreover, Parulia (PG)-Parulia (DVC) line has already been given to Powergrid for HTLS connectivity. After the HTLS connectivity, possibilities of switching-off of DSTPS ICT may be explored. Further, possibilities of bus-splitting at MTPS may also be worked out.

ERLDC representative requested DVC to maintain some minimum generation in Mejia. DVC representative submitted that Mejia unit-6 would be synchronized by 21st July 2022.

ERLDC representative was of the view that as per the study undergone by them, closing of

Bidhannagar-Waria circuit would not cater to the generation loss issues and advised DVC to explore the possibilities of bus splitting and connectivity to 400 KV of MTPS and RTPS.

Members may discuss.

Deliberation in the meeting

OCC advised all the members to update the status, if any, to ERLDC at the earliest.

ITEM NO. C.15: ICT Constraints violating N-1 security criteria.

The list of ICTs which are not N-1 complaint are given below:

Sl. No	Name of ICT	Short Term Measures	Long term Measures	The target date for long term measures
ICT Constraint in West Bengal Network				
1	i. 400/220 kV 2 X 315 MVA ICTs at Gokarna & ii. 400/220 kV Sagardighi 1 X 315 MVA ICTs	SPS Available for Gokerno ICTs **Action Required**:- Load trimming scheme needs to be planned for Sagardighi	i. 3rd ICT at Gokerno	Target Date Dec-22 **WBSETCL may update the present Status**
2	i. 400/220 kV ICT-1 & 2 at Bidhannagar	No SPS Available **Action Required**:- SPS needs to be planned	i. 400/220kV 315MVA (3rd) ICT at Bidhannagar	Target Date 2022-23 **WBSETCL may update the present Status**
ICT Constraint in ISTS Network				
3	i. 400/220 kV Ranchi 2 X 315 MVA ICTs	SPS Available	i. 3rd 500 MVA ICT at Ranchi	**POWERGRID may update the target date**
ICT Constraint in DVC Network				

Sl. No	Name of ICT	Short Term Measures	Long term Measures	The target date for long term measures
4	i. 400/220 kV Bokaro A 2 X 315 MVA ICTs	No SPS Available **Action Required**:- SPS needs to be planned	i. Upgradation with 500 MVA ICTs	**DVC may update target date**
5	**i.400/220 kV ICT-1 & 2 at DSTPS ***	No SPS Available **Action Required**:- SPS needs to be planned	i. Upgradation with 500 MVA ICTs	**DVC may update target date**
ICT Constraint in Odisha Network				
6	i. 400/220 kV New Duburi 2 X 315 MVA ICTs	No SPS Available **Action Required**:- SPS needs to be planned	i) 3rd ICT at New Duburi	**Odisha may update the target date**

In the 193rd OCC meeting, ERLDC representative submitted that outage of DSTPC ICTs or DSTPS Waria D/C line may create a large scale disturbance.

DVC representative submitted that under long-term measures, programs for augmentation of DSTPS ICT is under progress. Necessary approval from ERPC and CTU has already been taken in this regard.

Moreover, Parulia (PG)-Parulia (DVC) line has already been given to Powergrid for HTLS connectivity. After the HTLS connectivity, possibilities of switching-off of DSTPS ICT may be explored.

Members may update.

Deliberation in the meeting

OCC advised all the members to update the status, if any, to ERLDC at the earliest.

ITEM NO. C.16: Draft Central Electricity Authority (Flexible Operation of Thermal Power Plants) Regulations, 2022 and associated draft procedure by NLDC.

CEA has notified Draft Central Electricity Authority (Flexible operation of thermal power plants) Regulations, 2022. They have asked for comments by 26th August 2022.

Highlights of draft regulation:

- Applicable to all coal and lignite-based thermal power plants and load despatch centres.
- Objective of regulation is to mandate necessary retrofitting of thermal generators to support flexible operation to facilitate dispatch of must run generators like renewables
- This includes measures to reduce technical minimum, now termed as MPL (Minimum Power Level) , increase the ramp rates and optimize the start-up of the power plants

- Units throughout their service life shall be considered for flexible operation.
- Beforehand assessment for Suitability for start/stops, deep load following (Ramps), condition assessment and required upgradation for flexible operation need to be done.
- Load despatch can schedule flexible plants to support the operation of must-run stations.
    - All thermal plants up to minimum power levels of 55 % (Within 1 year)
    - All thermal plants up to minimum power levels of 40% with condition that (Within 3 years based in consultation with OEM)
        - Coal-based thermal plant: Minimum loading/unloading rate shall be 3 %/minute above MPL
        - Supercritical and ultra-super-critical units: Minimum loading/unloading rate shall be 5 %/minute above MPL
- All thermal plants to achieve the requirements should go for technical feasibility studies in consultation with the concerned Original Equipment Manufacturers/ Qualified Consultants
- All Thermal power plants to implement the necessary modifications as per this regulation.
- Any deviation from the limits prescribed under these Regulations shall be brought before the Authority on case-to-case basis by the thermal power plants for exemption, if any.

In view of the same, all thermal power plants in the eastern region should check their feasibility of operation at 55% and 40% status including ramping capability in consultation with OEM. For this ISGS, IPPs, Intra-state SGS and IPPs may also explore associated testing of their respective units at lower levels in consultation with OEM as a pilot project. This activity has been earlier done successfully on various ISGS/IPP power plants. Further, all are requested to submit comments.

It is also informed that Tamil Nādu is doing two-shift operations of Mettur and Tuticorin units to accommodate RE. They are taking units out between 0800-1100 hours and bringing them back between 1445-1815 hours.

DVC representative submitted that they are able to achieve the minimum load capacity of 55% in case of 500 MW and 600 MW units provided the coal quality is good. The lower capacity units are ball and tube mill type for which necessary permission from CEA and ERPC would be taken prior to testing of minimum load capacity.

WBPDCL representative submitted that the technical minimum for their units is different and varies depending upon their unit capacity. He further submitted that in general a minimum load capacity of 75% is maintained for all their units but due to deteriorated coal quality, at times it becomes difficult to maintain the load capacity especially for Kolaghat units.

WBPDCL was advised to send the detailed report on technical minimum of their units to ERPC at the earliest.

OCC advised all the generating units to submit their comments on draft CEA regulations, 2022 of Flexible Operation of Thermal Power Plants to CEA within the stipulated time period. Further, all the generating stations were also advised to submit the reports to ERPC & ERLDC on the present minimum load achieved by them against the designed technical minimum.

All the generating stations are requested to update the status.

Deliberation in the meeting

OCC advised all the generating stations to update the status at the earliest.

PART D: OPERATIONAL PLANNING

ITEM NO. D.1: Anticipated power supply position during January 2023.

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of January 2023 were prepared by ERPC Secretariat on the basis of LGBR for 2022-23 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc.

Members may update.

Deliberation in the meeting

*Updated anticipated power supply position is provided at **Annexure D.1**.*

ITEM NO. D.2: Shutdown proposal of generating units for the month of January 2023.

Proposed Maintenance Schedule of Thermal Generating Units of ER in the month of Jan' 2023

System	Station	Unit No.	Capacity (MW)	Period (as per LGBR 2022-23)		No. of Days	Reason	Remarks
				From	To			
WBPDCL	Kolaghat TPS	3	210	07.01.2023	16.01.2023	10	PG Test	
	Kolaghat TPS	5	210	17.01.2023	05.02.2023	20	AOH/BOH	
OPGC	IB TPS	1	210	01.01.2023	25.01.2023	25	Annual Maintenance	
NTPC	Farakka STPS	3	200	01.01.2023	04.02.2023	35	Boiler+FGD+MOP &TG Bearing	
	Kahalgaon STPS	1	210	05.01.2023	03.02.2023	30	Boiler + Generator Maintenance	
GMR	GMR	2	350	01.01.2023	14.02.2023	45	Annual Turbine Overhauling	

Note:

BRBCL has proposed Unit-2 (250 MW) annual overhauling and Boiler modification from 08.01.2023 to 17.02.2023 (for 40 days). As per LGBR 2022-23, it was scheduled for planned maintenance from 25.08.2022 to 03.10.2022 (40 Days).

Members may update.

Deliberation in the meeting

*Approved maintenance schedule is provided at **Annexure D.2**.*

OPGC representative submitted that they are planning to take the shutdown of IB TPS unit-1 from 11th March 2023. Odisha representative submitted that shutdown of IB TPS unit should be completed before March 2023.

OCC advised OPGC to complete the shutdown activities before March 2023.

NTPC representative submitted that shutdown of Farakka unit-2 would be taken in place of unit-3 and shutdown of Kahalgaon unit-3 would be taken in place of unit-1. Bihar representative advised NTPC to complete the shutdown activities before March 2023.

OCC advised NTPC to complete the shutdown activities of Kahalgaon unit-3 latest by 15th March 2023.

BRBCL representative submitted that shutdown of BRBCL unit-2 would be taken from 7th February 2023 to 18th March 2023 for 40 days for boiler modification works.

OCC advised BRBCL to complete the shutdown activities before 15th March 2023.

ITEM NO. D.3: Major Generating Units/Transmission Element outages/shutdown in ER Grid (as on 19.12.2022)

a) Thermal Generating Stations outage report:

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	FSTPP	WEST BENGAL	NTPC	1	200	Initially unit was out due to less requisition and from 0000Hrs of 14.11.2022 it is under annual overhauling for 1 month	11-Nov-2022
2	GMR	ODISHA	GMR-Infra	1	350	Overhauling for 25 days	20-Nov-2022
3	KHSTPP	BIHAR	NTPC	5	500	Overhauling for 45 days	22-Nov-2022
4	NABINAGAR(NPGC)	BIHAR	NPGC	1	660	Annual Overhauling for 80 days	06-Nov-2022
5	BAKRESHWAR	WEST BENGAL	WBPDCL	3	210	Annual overhauling for 30 days	20-Nov-2022
6	BUDGE-BUDGE	WEST BENGAL	CESC	3	250	Annual maintenance for 10 days	09-Dec-2022
7	RTPS	DVC	DVC	1	600	Capital Overhauling for 50 days	25-Oct-2022
8	BARAUNI TPS	BIHAR	NTPC	6	110	Initially unit tripped on flame failure but later, problem found in condenser.	14-Jul-2022
09	BARAUNI TPS	BIHAR	NTPC	7	110	Excessive chemical deposits on Turbine blades(turbines need to be opened for assessment of the extent of deposits and the repairs required to address the issue of High First Stage pressure in HP	19-Feb-2022

						Turbine)	
10	DPL	WEST BENGAL	WBPDCL	7	300	Due to poor coal stock	07-Dec-2022

All Generating stations are requested to update expected restoration time and reason outage to ERLDC/ERPC on weekly basis in case of any change at their end.

Generators/ constituents are requested to update the expected date of revival of the units.

Deliberation in the meeting

OCC advised all the generators/constituents to update the status of revival of units.

b) Major Generating stations Out on Reserve Shutdown due to low system demand:

S. NO	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	FSTPP	WEST BENGAL	NTPC	2	200	Reserve Shutdown	26-Nov-2022
2	FSTPP	WEST BENGAL	NTPC	6	500	Reserve Shutdown	09-Dec-2022

c) Hydro Unit Outage Report:

S. NO	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	BALIMELA HPS	ODISHA	OHPC	3	60	THE UNIT TAKEN OUT UNDER R & M FOR 18 MONTHS.	08-Jul-2022
2	BALIMELA HPS	ODISHA	OHPC	4	60	THE UNIT TAKEN OUT UNDER R & M FOR 18 MONTHS.	08-Jul-2022
3	BALIMELA HPS	ODISHA	OHPC	8	75	Commissioning of HMI in governor panel	05-Dec-2022
4	RENGALI HPS	ODISHA	OHPC	2	50	Annual Maintenance	12-Nov-2022

d) Long outage report of transmission lines (As on 09.12.2022):

Transmission Element / ICT	Outage From	Reasons for Outage
400 KV IBEUL JHARSUGUDA D/C	29.04.2018	TOWER COLLAPSE AT LOC 44,45
220 KV PANDIABILI - SAMANGARA D/C	03.05.2019	49 NOS OF TOWER COLLAPSED.AS REPORTED BY SLDC OPTCL, TOTAL 60 NOS OF TOWER IN BETWEEN 220KV PANDIABILI – SAMANGARA LINE IN WHICH 48 NOS TOWERS FULLY DAMAGED AND 12 NOS TOWERS PARTIALLY DAMAGED. WORK UNDER PROGRESS.PRESENTLY CHARGED FROM PANDIABILLI END (LOC 156) TO LOC 58
220/132 KV 100 MVA ICT II AT LALMATIA	22.01.2019	FAILURE OF HV SIDE BREAKER
220/132 KV 100 MVA ICT 3 AT CHANDIL	30.04.2020	ICT BURST AND DAMAGED AFTER FIRE REPORTED

400KV/220KV 315 MVA ICT 4 AT JEERAT	09.04.2021	VERBALLY CONFIRMED BY WB THAT NEW TRANSFORMER PROCUREMENT UNDER PIPELINE AND SHALL BE REPLACED IN THE NEAR FUTURE.
220KV-FSTPP-LALMATIA	21.04.2021	THREE TOWER COLLAPSED NEAR LALMATIA
400KV MAIN BUS - 2 AT DIKCHU	05.05.2021	REPEATED SPURIOUS BUSBAR PROTECTION OPERATION
220KV-GAYA-CHANDAUTI (PMTL)-DC	22.05.2021	FOR DISMANTLING OF TOWER NO 51 UNDER LILO WORK AT BODHGAYA.
400KV/220KV 315 MVA ICT 1 AT INDRAVATI (PH)	24.02.2022	INITALLY REPORTED BUCHHOLZ RELAY OPERATED. LATER SLDC ODISHA REPORTED THAT CONTROL & RELAY PANEL OF ICT BURNT. REPLACEMENT FOR THE SAME IS UNDER PROCESS.
220KV-WARIA-BIDHANNAGAR-1	08-06-2022	TO CONTROL OVERLOADING OF 220 KV WARIA-DSTPS (ANDAL) D/C LINE
220KV-WARIA-BIDHANNAGAR-2	08-06-2022	TO CONTROL OVERLOADING OF 220 KV WARIA-DSTPS (ANDAL) D/C LINE
220KV-ALIPURDUAR (PG)-ALIPURDUAR(WB)-1	14.07.2022	S/D TAKEN FOR RELAY TESTING PURPOSES, COULD NOT BE RETURNED DUE TO B-PH CB LOCKOUT
400KV/220KV 315 MVA ICT 1 AT PATRATU	01.08.2022	BUCHHOLZ RELAY OPERATED
220KV-RANCHI-HATIA-2	24.09.2022	TOWER COLLAPSE AT LOCATION NO - 10
400KV/220KV 315 MVA ICT 2 AT PATRATU	27.09.2022	DGA VIOLATION
765KV-FATEHPUR-PUSAULI-1	28.11.2022	For diversion work under consultancy of UPEIDA.
400KV-BINAGURI-RANGPO-2	30.11.2022	Shutdown till 25/12/2022 for SF6 gas leakage rectification work
220KV-ALIPURDUAR (PG)-SALAKATI-1	01.12.2022	For Reconductoring Work of Line with HTLS Conductor till 15/12/22
220KV-JAYNAGAR-JEYPORE-3	06.12.2022	Tripped due to problem at relay at Jayanagar end. Presently it is under inspection.

Transmission licensees/ Utilities are requested to update expected restoration date & work progress regarding restoration regularly to ERLDC/ERPC on monthly basis by 5th of each month so that status of restoration can be reviewed in OCC. Utilities are also requested to update outage of any elements within their substation premises like isolator/breaker to ERLDC/ERPC regularly.

Members may note.

Deliberation in the meeting

Members noted.

ITEM NO. D.4: Commissioning of new units and transmission elements in Eastern Grid in the month of November-2022

The details of new units/transmission elements commissioned in the month of November-2022 based on the inputs received from beneficiaries:

NEW ELEMENTS COMMISSIONED DURING November, 2022							
GENERATING UNITS							
SL. NO.	**Location**	**OWNER/UNIT NAME**	**Unit No /Source**	**Capacity added (MW)**	**Total/Installed Capacity (MW)**	**DATE**	**Remarks**
NIL							
ICTs/ GTs / STs							
SL. NO.	**Agency /Owner**	**SUB-STATION**	**ICT NO**	**Voltage Level (kV)**	**CAPACITY (MVA)**	**DATE**	**Remarks**
1	BGCL	Jakkanpur GIS	2	400/220/132/33	500	3-Nov-22	ICT-02 was first time synchronised on 05-11-2022 at 17:35 Hrs.
2	PGCIL	Durgapur SS	1	400/220/33	315	17-Nov-22	Aproval for shifting of ICT-1 from Bus Section A to Bus Section B with new Bay No. 416.
TRANSMISSION LINES							
SL. NO.	**Agency /Owner**	**LINE NAME**		**Length (KM)**	**Conductor Type**	**DATE**	**Remarks**
NIL							
LILO/RE-ARRANGEMENT OF TRANSMISSION LINES							
SL. NO.	**Agency /Owner**	**Line Name/LILO at**		**Length (KM)**	**Conductor Type**	**DATE**	**Remarks**
NIL							
BUS/LINE REACTORS							
SL. NO.	**Agency /Owner**	**Element Name**		**SUB-STATION**	**Voltage Level (kV)**	**DATE**	**Remarks**
NIL							
BAYS							
SL. NO.	**Agency /Owner**	**Element Name**		**SUB-STATION**	**Voltage Level (kV)**	**DATE**	**Remarks**
NIL							

Members may note.

Deliberation in the meeting

Members noted.

ITEM NO. D.5: UFR operation during the month of November 2022.

Frequency profile for the month as follows:

Month	Max (Date/Time)	Min (Date/Time)	Less IEGC Band (%)	Within IEGC Band (%)	More IEGC Band (%)
November, 2022	50.27 Hz on 20.11.2022 at 06:03 Hrs.	49.44 Hz on 08.11.2022 at 18:30 Hrs.	6.70	76.99	16.31

Hence, no report of operation of UFR has been received from any of the constituents

Members may note.

Deliberation in the meeting

Members noted.

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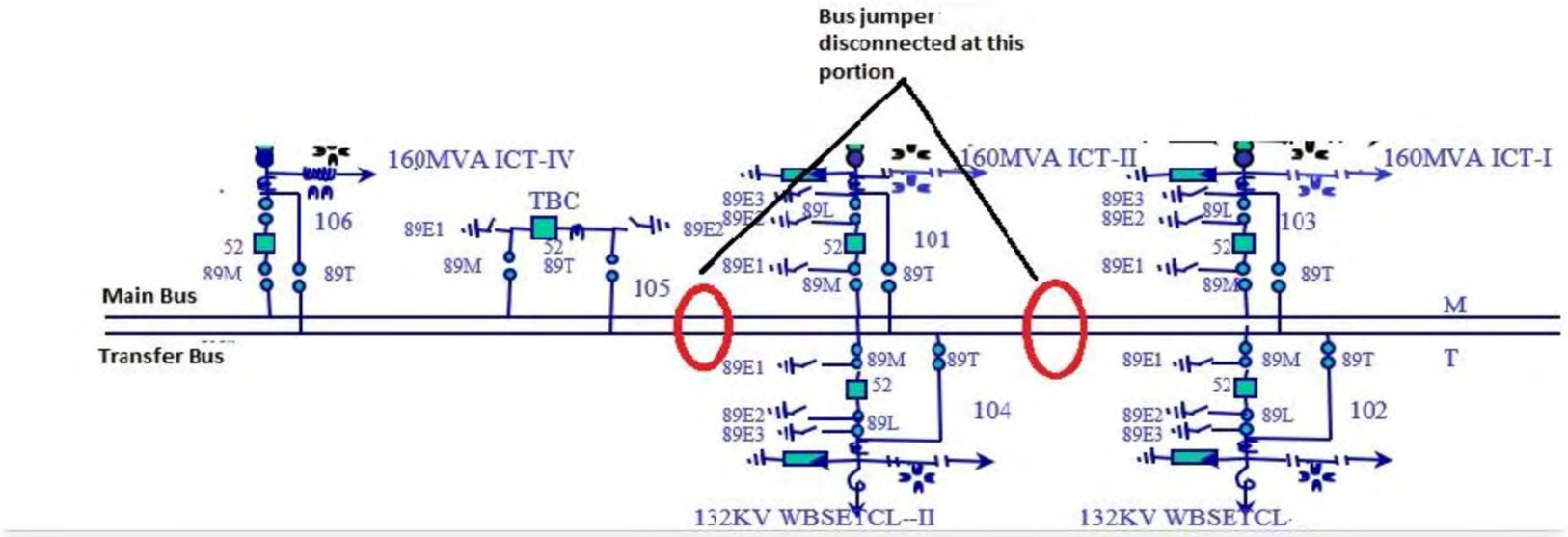
Requirement of shutdown for commissioning of 132KV GIS at Malda SS



Phase-I: (complete shutdown of 132KV Bus)- Completed

1. 132 KV complete Bus shutdown shall be taken for 4 hr in early morning
2. Disconnection of Jumpers at 2 points –

a) Between 132 KV WBSETCL -1 & 160 MVA ICT-II

b) Between 132 KV WBSETCL -2 & 132 KV TBC BAY

1. After splitting of Bus, all the elements will be taken in service through split bus condition.

Phase-II: (Bus Section-I)–GIB Erection: 16.12.22 at 07:00 hrs to 19.12.22 at 16:00 hrs on ODB - Completed

1. Shutdown of 220/132KV ICT-1 and 132KV Malda Ckt-1 on daily basis.
2. 132KV WBSETCL Ckt-II will remain in service through ICT-II. ICT-IV will remain in service with no load condition. As per requirement, 132KV WBSETCL Ckt-II also can be taken in service through ICT-IV via TBC as a backup of ICT-II.

Phase-III: (Bus Section-I&II) GIB Erection: 26.12.22 at 07:00 hrs to 27.12.22 at 16:00 hrs on ODB

1. Shutdown of 220/132KV ICT-1 & 2 and 132KV Malda Ckt-2 on daily basis.
2. 132KV WBSETCL Ckt-I will remain in service through ICT-IV and TBC Bay.
3. 02 nos. GIB erection falling under Bus Section – I & II both is pending. So, above shutdown is required for same.
4. Image of erected portion

02 nos. GIB (01 no. for Malda Ckt-2 & another is for Manikchak-1) erection under Bus Section – I & II both is pending.

Phase-IV: (Bus Section-II) GIB Erection: 28.12.22 at 07:00 hrs to 29.12.22 at 16:00 hrs on ODB

1. Shutdown of 220/132KV ICT-2 and 132KV Malda Ckt-2 on daily basis.
2. 132KV WBSETCL Ckt-1 will remain in service through ICT-1. ICT-4 will remain in service with no load condition. As per requirement, 132KV WBSETCL Ckt-1 also can be taken in service through ICT-4 via TBC as a backup of ICT-1.

Phase-V : (Bus Section-II & III) GIB erection From 30/12/22 at 07:00 hrs to 31/12/22 at 16:00 hrs ODB

1. Shutdown of 220/132KV ICT-4 , TBC Bay , ICT-2 & Malda Ckt-2 on daily basis.
2. 132KV WBSETCL Ckt-1 will remain in service through ICT-1.
3. Shutdown of both the Bus Section – II & III is required for erection of the GIB duct under both Bus Section-II & III.

Phase-VI : GIB erection of ICT-I From 01/01/22 at 07:00 hrs to 15/01/23 at 16:00 hrs OCB

1. Shutdown of 220/132KV ICT-1 on continuous basis for a period of 15 days till commissioning.
2. Shutdown of 132KV WBSETCL Ckt-1 on daily basis & will be taken into service through ICT-4 & TBC daily .
3. ICT-2, 4 & Malda Ckt-2 will remain in service for power flow.
4. Dismantling of ICT-1 existing Bay equipment including support structures.
5. Construction of foundations for GIB support structures.
6. Erection of GIB Support structures.
7. Erection of ICT-1 Bay GIB & Air Bushing.
8. HV testing of ICT-I bay including GIS Bus-I &II and 132KV WBSETCL Ckt-1, Manikchak 1&2.
9. Commissioning of ICT-I, GIS Bus-I &II and Malda Ckt-1.

Phase-VII : GIB Erection of ICT-II From 16/01/23 at 07:00 hrs to 30/01/23 at 16:00 hrs OCB

1. Shutdown of 220/132KV ICT-2 on continuous basis for a period of 15 days till commissioning.
2. Shutdown of 132KV WBSETCL Ckt-2 on daily basis & will be taken into service through ICT-4 & TBC daily .
3. ICT-1 & Malda Ckt-1 will remain in service through GIS for power flow.
4. Dismantling of ICT-2 existing Bay equipment including support structures.
5. Construction of foundations for GIB support structures.
6. Erection of GIB Support structures.
7. Erection of ICT-2 Bay GIB & Air Bushing.

Phase-VIII: GIB erection of ICT-IV From 31/01/23 at 07:00 hrs to 14/02/23 at 16:00 hrs OCB

1. Shutdown of 220/132KV ICT-IV, ICT-II & Malda-II on continuous basis for a period of 10 days till commissioning.
2. ICT-I & Malda-I will be in service through GIS for continue power flow.
3. Dismantling of existing bay equipment including support structures.
4. Construction of foundation for GIB support structures.
5. Erection of GIS supports structures.
6. Erection of GIB of ICT-IV bay including GIS to AIR bushing
7. HV testing of ICT-II, IV and 132KV Malda Ckt-II.
8. Commissioning of ICT-II, IV, 132KV Malda ckt-II.

Annexure B.6

Regarding restoration of theft/missing tower members at Tower Loc. no. 5&6 of 220KV S/C Lalmatia - Farakka Transmission line.

Lalmatia GSS <lalmatiatsd@gmail.com>

Thu 08-12-2022 14:38

To:Dharmendra Kumar Javeri {डी.के. जावेरी} <javeri@powergrid.in>; eeetdlalmatiajusnl1@gmail.com <eeetdlalmatiajusnl1@gmail.com>;

Cc:esetcdumka1@gmail.com <esetcdumka1@gmail.com>;

4 attachments

IMG_20221205_131636.jpg; IMG_20221205_131252.jpg; IMG_20221205_131432.jpg; IMG_20221205_131341.jpg;

Sir,

Please refer to the trailing mail on 07.11.2022 as received from your end,during the inspection of 220KV single circuit Lalmatia - Farakka Transmission line at Tower loc. no. 5 & 6 and found that a huge number of Tower members were missing/ theft by unknown miscreants. The same has been reported to the concerned police station. Restoration of theft/missing Tower members at tower loc. no. 5 & 6 of above said transmission line have been carried out by our working agency.As we know that 220KV Lalmatia- Farakka Trans. Line is out of service since 21.04.2021.Line idle charged between Tower loc.no. 233 to 180 with 11KV LT line and rest of the tower location are abandoned. The area behind NTPC/Farakka Plant comes under heavy theft prone zone and day to day theft incidents occurred in said Transmission line by unknown miscreants.Due to day by day theft incidents in above transmission line it is not possible to save the mentioned Tower loc. 5 &6 in near future.

This is for your kind information and necessary action.

REGARDS,

Manager
Trans. Sub - Division
Lalmatia

Fw: Regarding huge no. of missing Tower members in the towers of 220 kV Farakka Lalmatia Line(Loc 05 & 06) crossing over 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID

Dharmendra Kumar Javeri {डी.के. जावेरी}

Mon 07-11-2022 17:28

To:Prosun Kumar Mallik {प्रोसुन कुमार मलिक} <prosun.mallik@powergrid.in>; Sukdev Mondal {सुकदेव मंडल} <sukdevmondal@powergrid.in>;

5 attachments

IMG-20221107-WA0023.jpg; IMG-20221107-WA0019.jpg; IMG-20221107-WA0020.jpg; IMG-20221107-WA0018.jpg; IMG-20221107-WA0017.jpg;

डी०के०जावेरी/D.K.Javeri
मुख्य महाप्रबंधक (सं०प्र० व सं०से)/CGM(AM & CS),
पूर्वी क्षेत्र-II, कोलकाता/Eastern Region-II, Kolkata
मोबाइल - 9425409535/700089522

From: Dharmendra Kumar Javeri {डी.के. जावेरी}
Sent: 07 November 2022 17:28
To: lalmatiatsd@gmail.com; sldcranchi@gmail.com
Cc: Ram Prakash; N S Mondal; rajibsutradhar@posoco.in; Amaresh Mallick (अमरेश मल्लिक); Shyamal Konar (श्यामल कोनार); Saugato Mondal (सौगाता मंडल); Asit Kumar Maiti {असित कुमार मैती}; Sudeep Nandi {सुदीप नंदी}
Subject: Regarding huge no. of missing Tower members in the towers of 220 kV Farakka Lalmatia Line(Loc 05 & 06) crossing over 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID

Sir,
Please refer the trailing mail as received from our TL maintenance Engineer at Farakka TLM.As stated in the mail huge no. of missing Tower members have been noticed in 220 kV Farakka Lalmatia Line(Loc 05 & 06) which is crossing over 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID. Due to serious member theft at Loc No. 05 & Loc No.-06 in 220 kV Farakka Lalmatia Line there is high chance of the towers getting collapse over POWERGRID line 400 kV S/C Farakka Sagardighi I & II TL resulting in long outage of POWERGRID line.
In view of above you are requested to take immediate measure for prevention of tower collapse at Loc No. 05 & 06 of 220 kV Farakka Lalmatia Line.Our concerned TLM Engineer at Farraka is Sh Sudeep Nandi,Mob No.-8948773907.

Regards,
डी०के०जावेरी/D.K.Javeri
मुख्य महाप्रबंधक (सं०प्र० व सं०से)/CGM(AM & CS),
पूर्वी क्षेत्र-II, कोलकाता/Eastern Region-II, Kolkata
मोबाइल - 9425409535/700089522

From: Sudeep Nandi {सुदीप नंदी} <sudeepnandi@powergrid.in>
Sent: 07 November 2022 16:48
To: Prosun Kumar Mallik {प्रोसुन कुमार मलिक} <prosun.mallik@powergrid.in>; Sukdev Mondal {सुकदेव मंडल} <sukdevmondal@powergrid.in>
Cc: K K Prusti {के.के.} <kkp@powergrid.in>; S Sen {एस. सेन} <subhendra@powergrid.in>; Aziz Al Aman {अजीज अल अमन} <aziz@powergrid.in>; MILAN GORAI {मिलन गोराई} <m.gorai@powergrid.in>; Suryakanta Khuntia {सूर्यकांत खुंटिया} <suryakanta@powergrid.in>
Subject: Regarding huge no. of missing Tower members in the towers of 220 kV Farakka Lalmatia Line(Loc 05 & 06) crossing over 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID

Dear Sir,
During patrolling of 400 kV S/C Farakka Sagardighi I & II TL , huge no. of missing members have been observed in the Powerline crossing towers of 220 KV Farakka Lalmatia TL(owned by JUSNL) situated in village:Jorpukuria,Farakka crossing over Loc 03 & 04 of both 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID. Any incident of collapse of towers of the mentioned crossing towers of Farakka Lalmatia line shall damage our existing 400 kV Farakka Sagardighi TL which is already more than 35 years old.
Earlier also, an incident of Tower collapse of 220 kV Farakka Lalmatia line over our 400 kV S/C Farakka Durgapur 1 & 2 TL had occurred in the year 2021 which had severely damaged the our existing transmission lines .Restoration of the lines were carried out under extreme ROW situations last year. Any incident of the tower collapse shall lead to severe damage to our old Farakka Sagardighi I & II TL.

It is requested to kindly intimate the concerned transmission utility for rectification of the missing members in the Powerline crossing Towers of 220 kV Farakka lalmatia TL crossing over POWERGRID owned Transmission lines at Farakka.

Thanks & Regards,
Sudeep Nandi
Engineer
PowerGrid Corporation of India Ltd.
Farakka TL O&M Office
Mob:8948773907

दावात्याग : यह ईमेल पावरग्रिड के दावात्याग नियम व शर्तों द्वारा शासित है जिसे http://apps.powergrid.in/Disclaimer.htm पर देखा जा सकता है।
Disclaimer: This e-mail is governed by the Disclaimer Terms & Conditions of POWERGRID which may be viewed at http://apps.powergrid.in/Disclaimer.htm

Annexure B.8

Format:

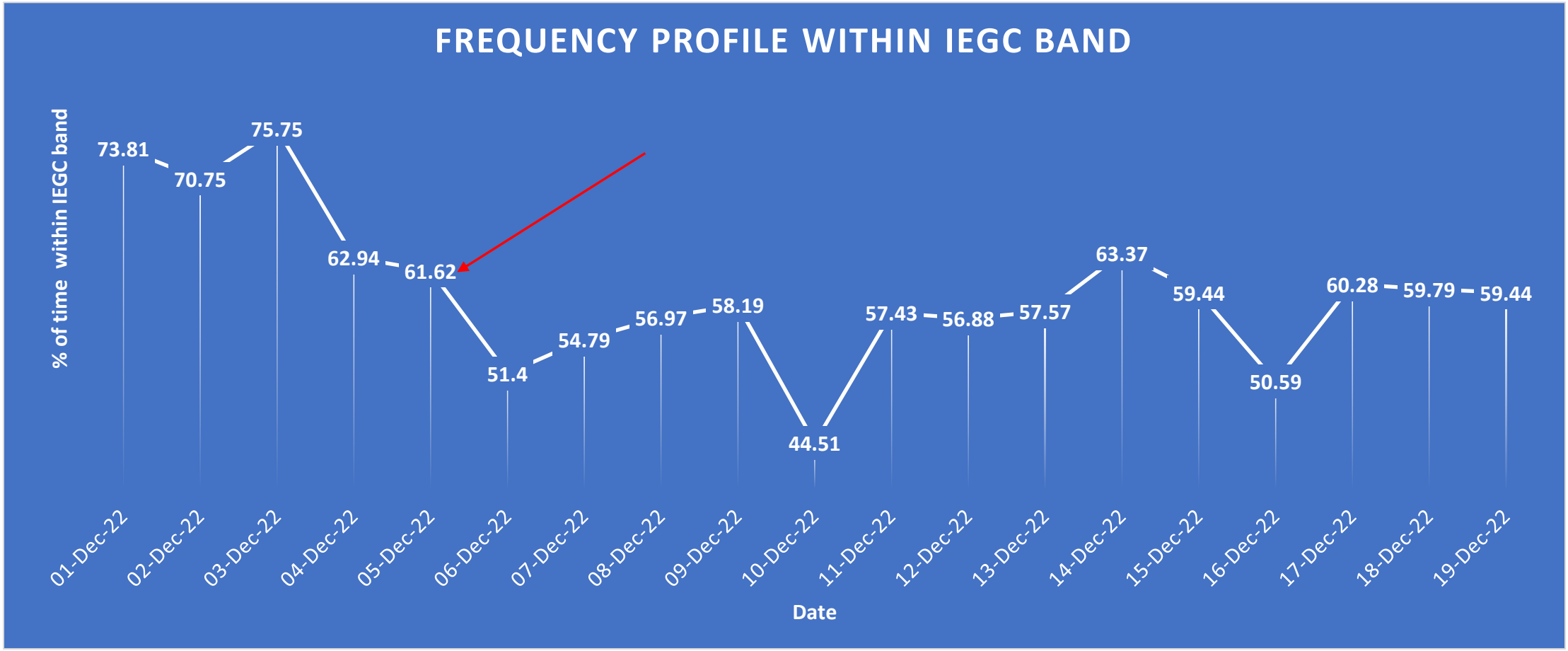
State/DISCOM	Month	Surplus/ Shortage (in MW)		Remarks
		During Peak Hours	During Off-Peak Hours	
	Dec, 2021			
	Jan, 2022			
	Feb, 2022			
	Mar, 2022			
	Apr, 2022			
	May, 2022			
	Jun, 2022			
	Jul, 2022			
	Aug, 2022			
	Sep, 2022			
	Oct, 2022			
	Nov, 2022			

Note: Kindly mention the Peak and Off-Peak hours of respective State/DISCOMs.

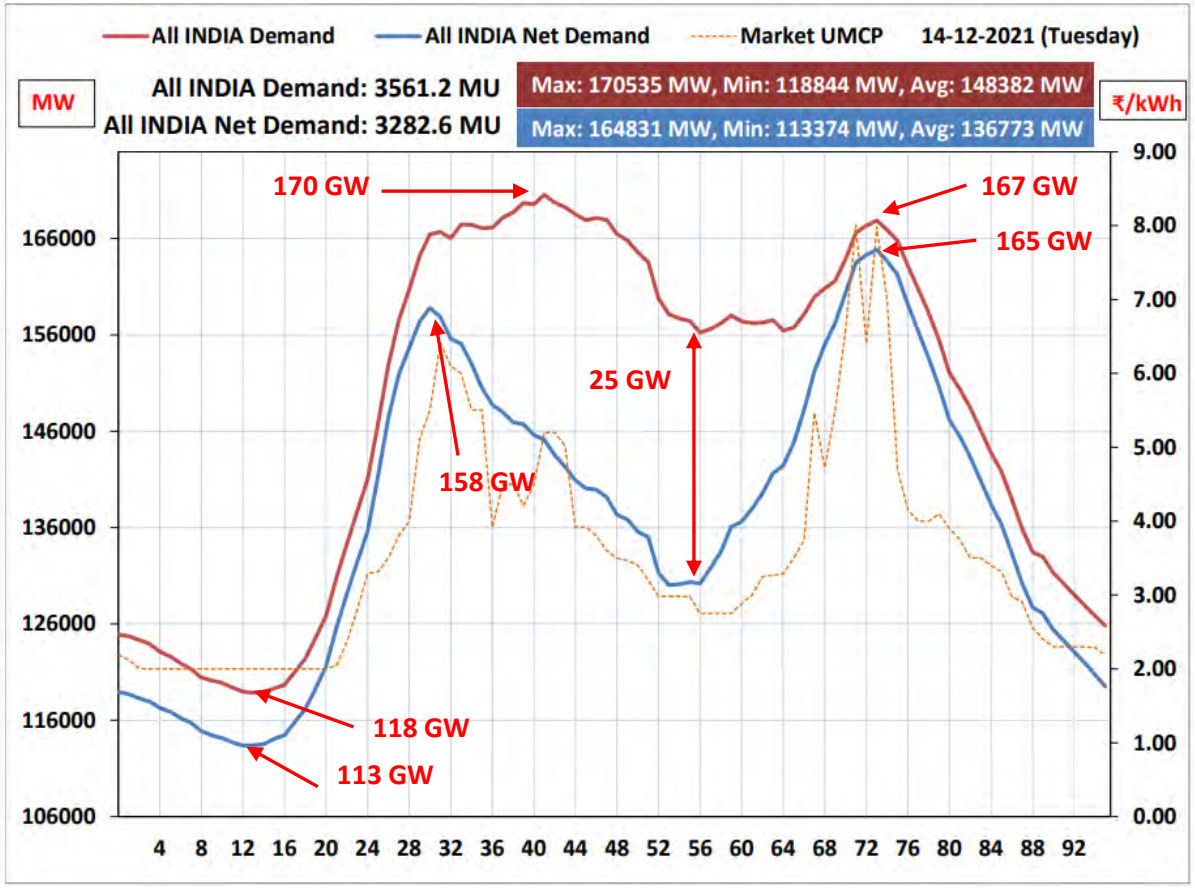
Annexure-B7.1

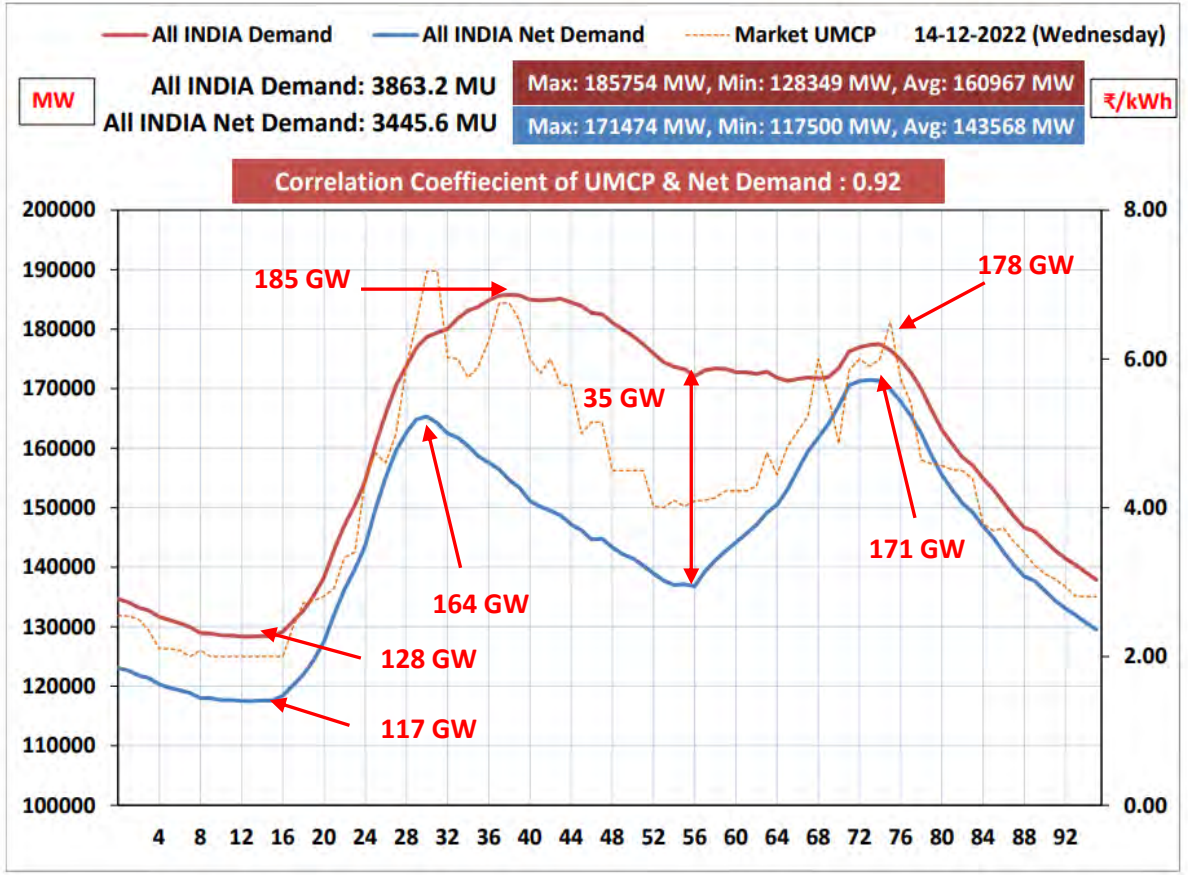
Analysis of Grid Behaviour after DSM implementation w.e.f 05.12.2022

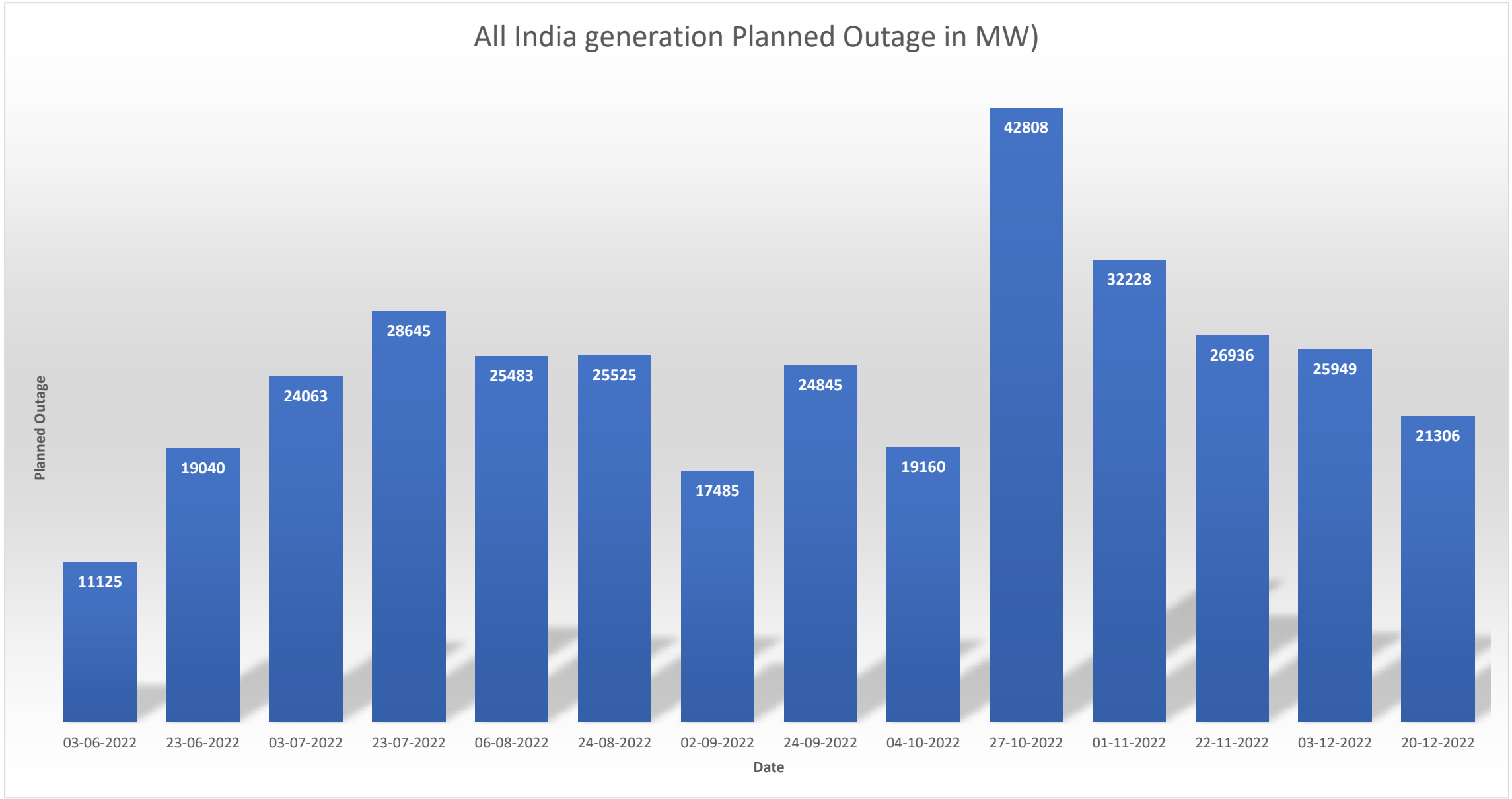
Frequency percentage within IEGC band



Demand Comparison 2021 & 2022

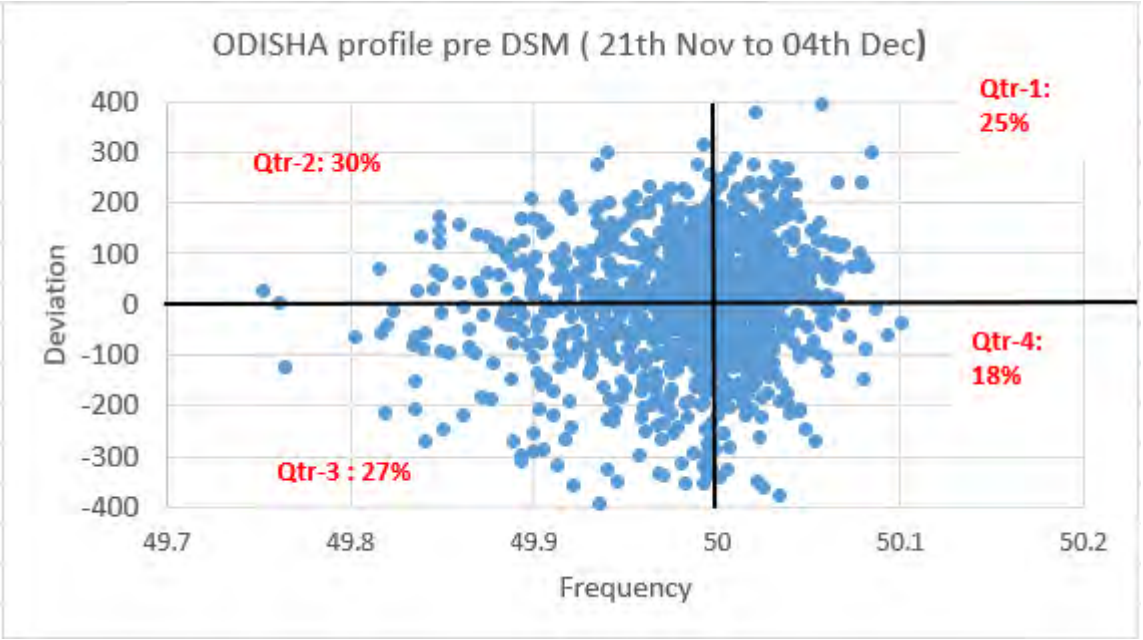


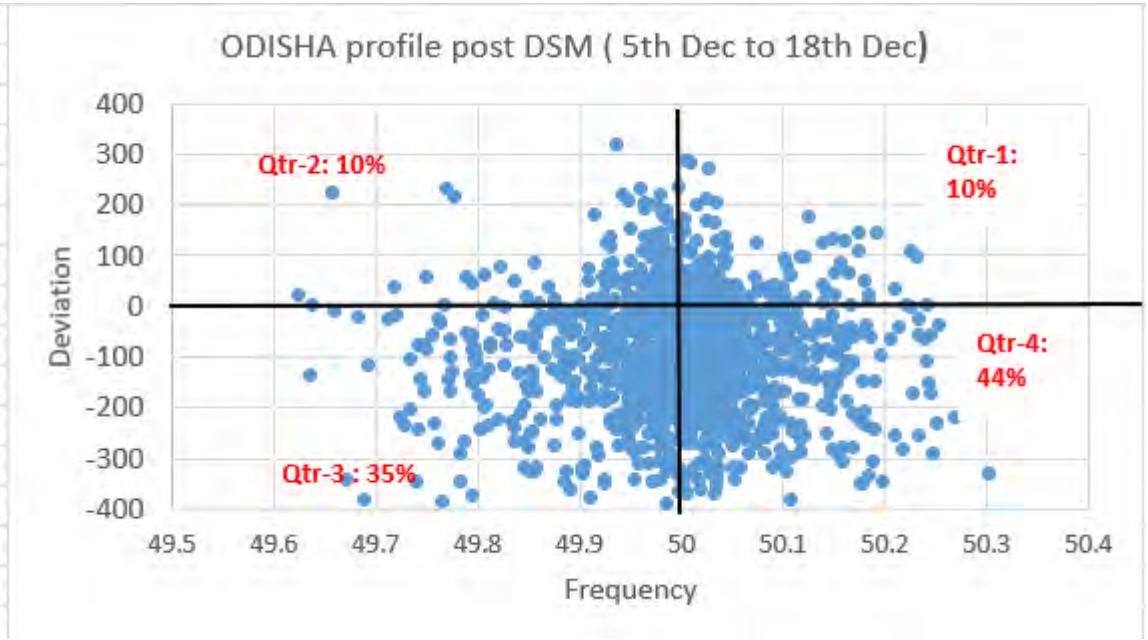



All India generation Planned Outage in MW)
Planned Outage
11125
19040
24063
28645
25483
25525
17485
24845
19160
42808
32228
26936
25949
21306
03-06-2022
23-06-2022
03-07-2022
23-07-2022
06-08-2022
24-08-2022
02-09-2022
24-09-2022
04-10-2022
27-10-2022
01-11-2022
22-11-2022
03-12-2022
20-12-2022
Date

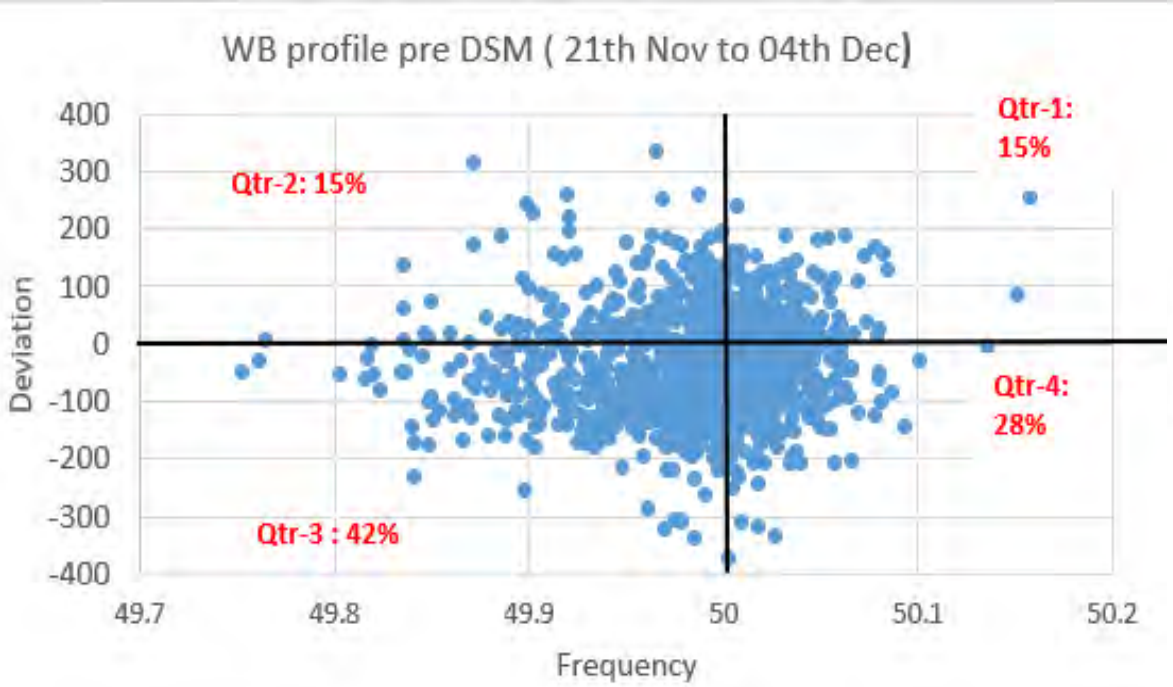
Constituents behaviour Post& Pre DSM

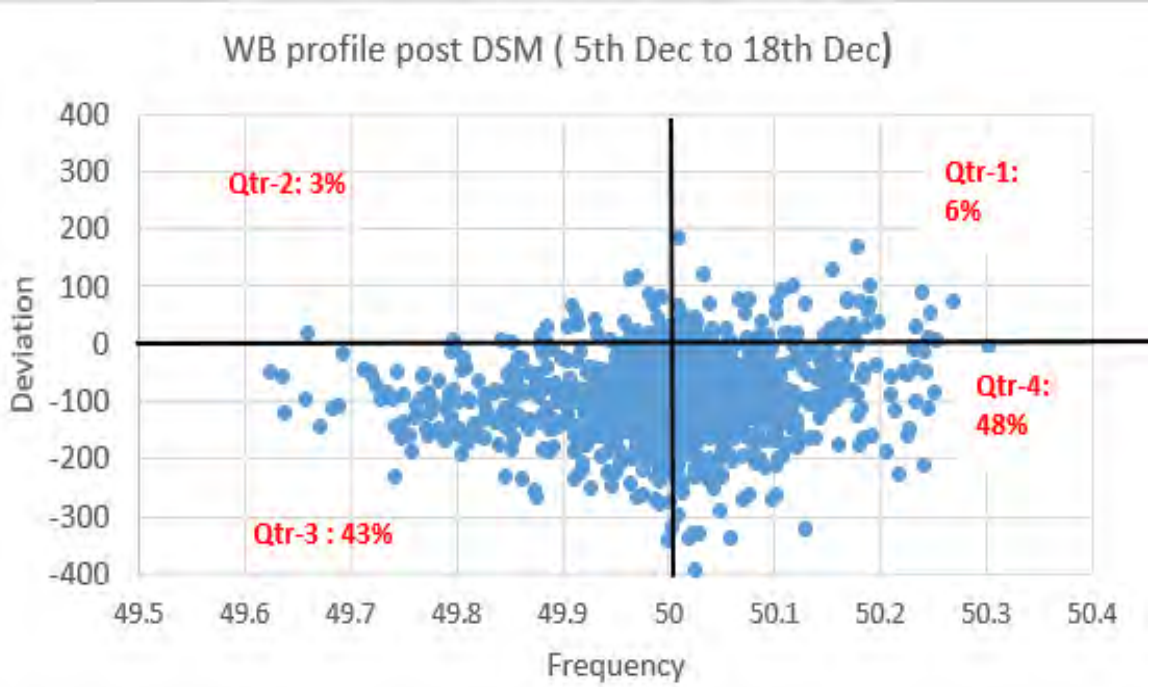
GRIDCO Deviation profile



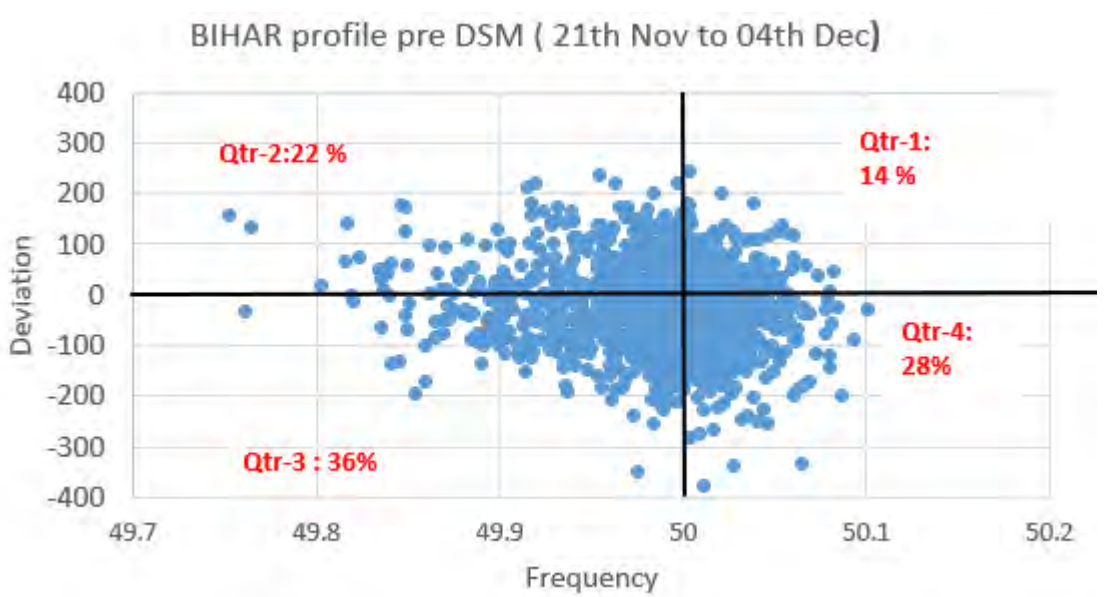


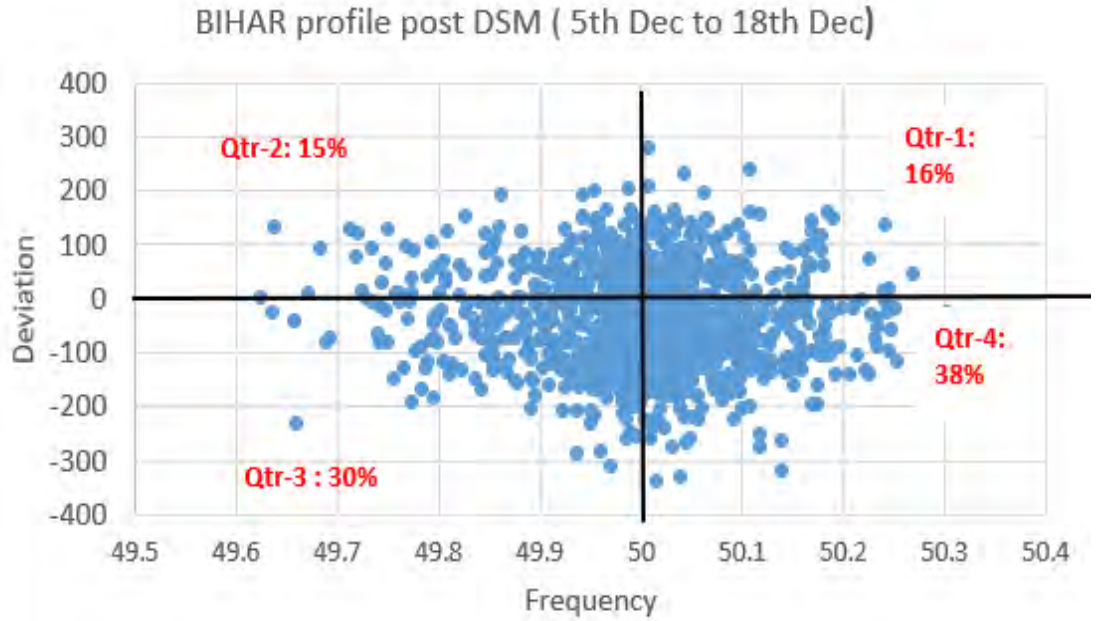
West Bengal Deviation profile



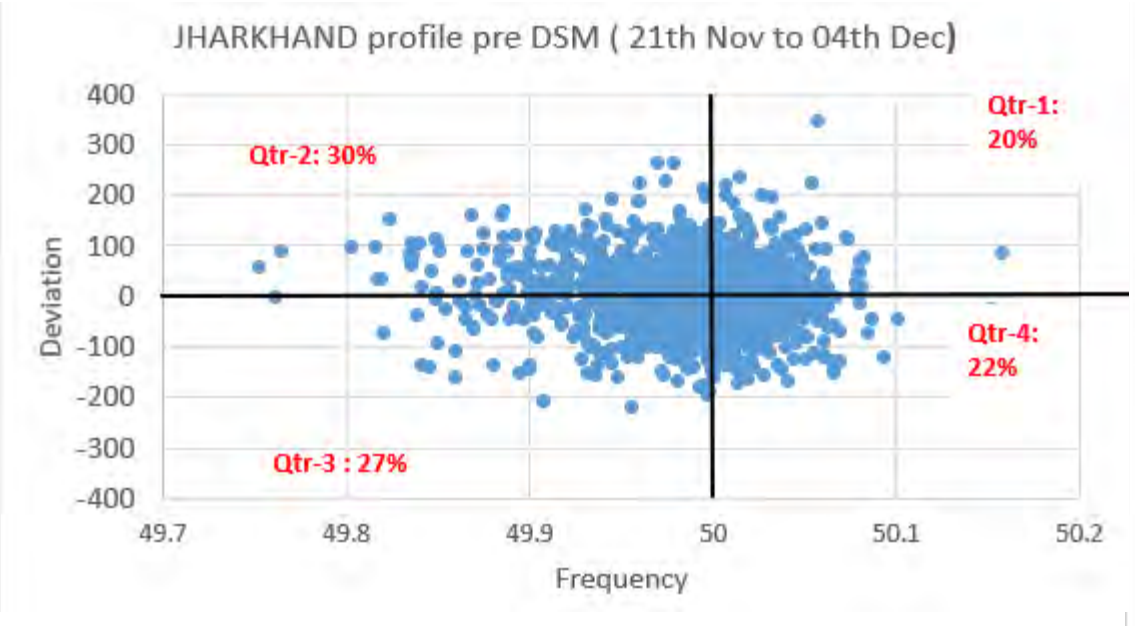


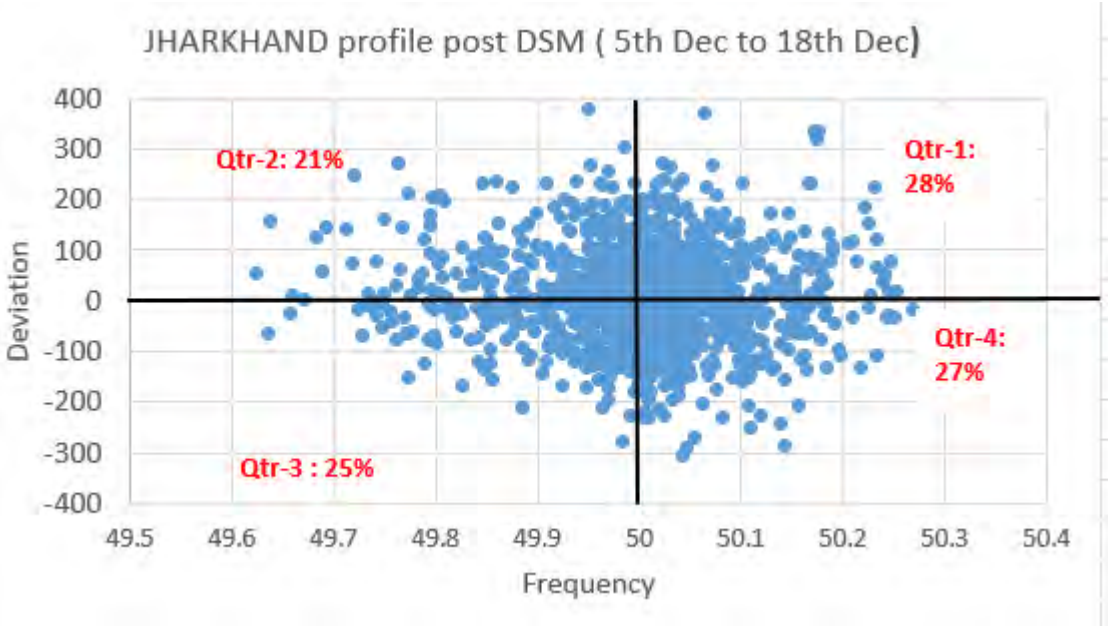
Bihar Deviation profile



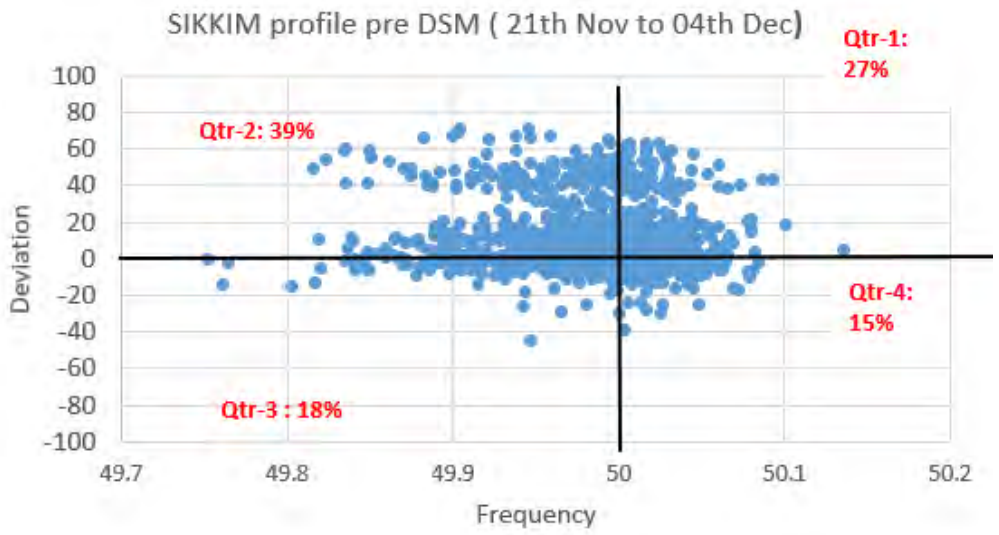


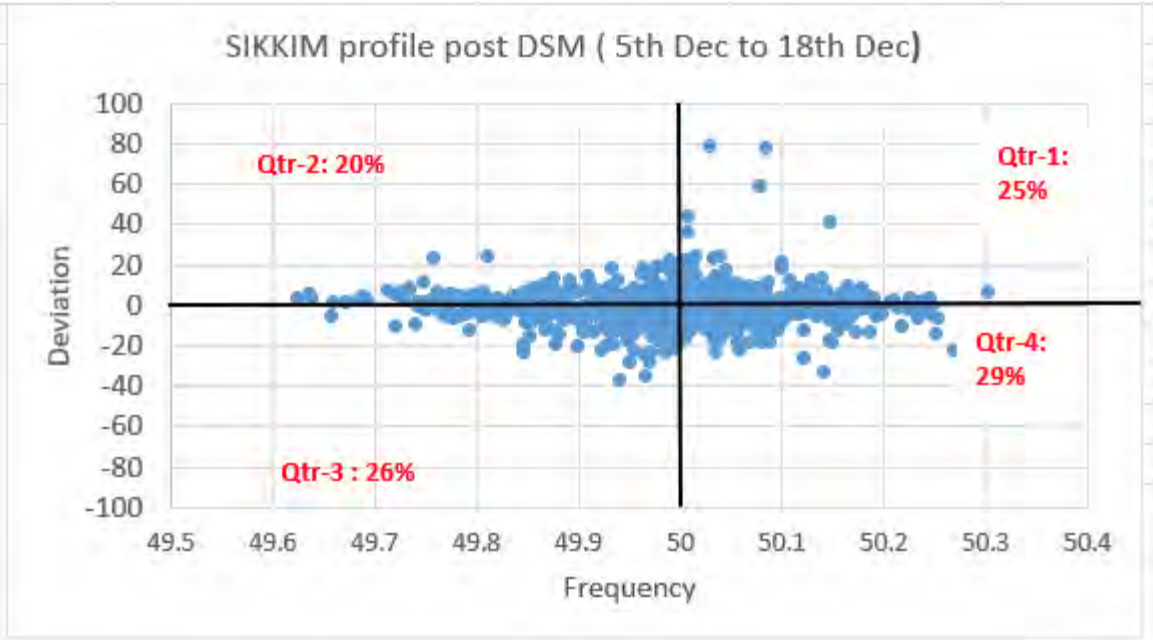
Jharkhand Deviation profile



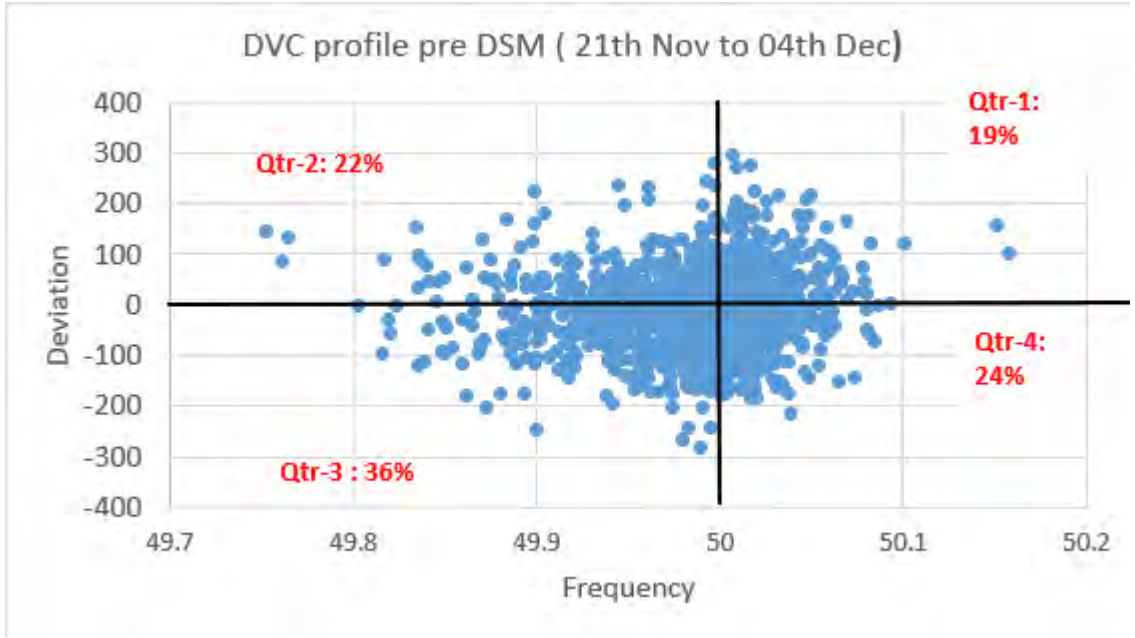


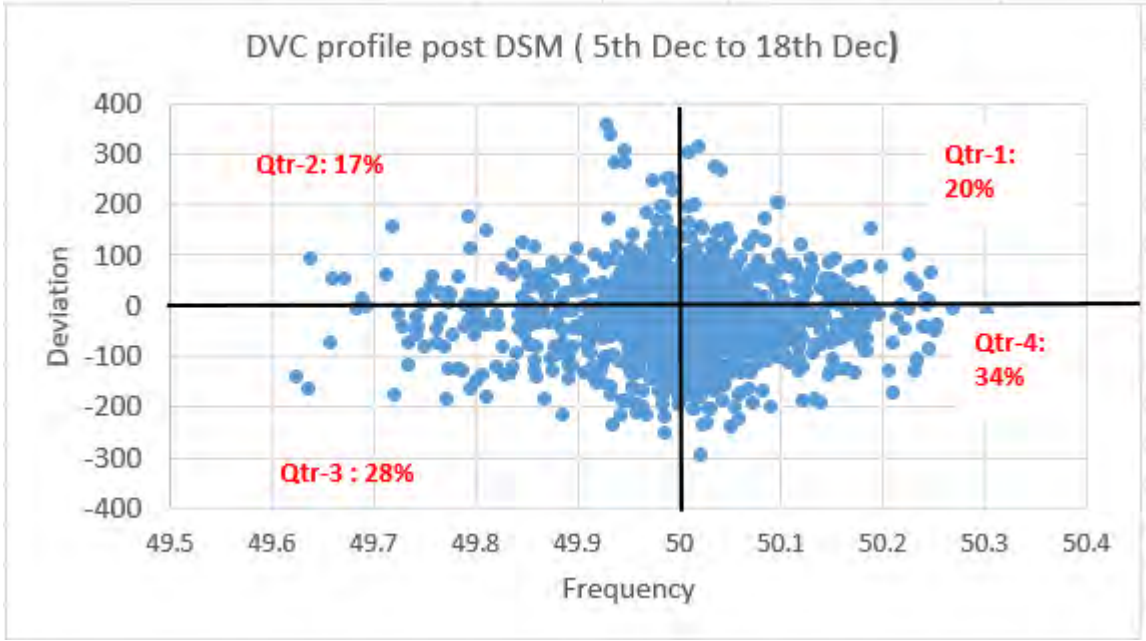
Sikkim Deviation profile



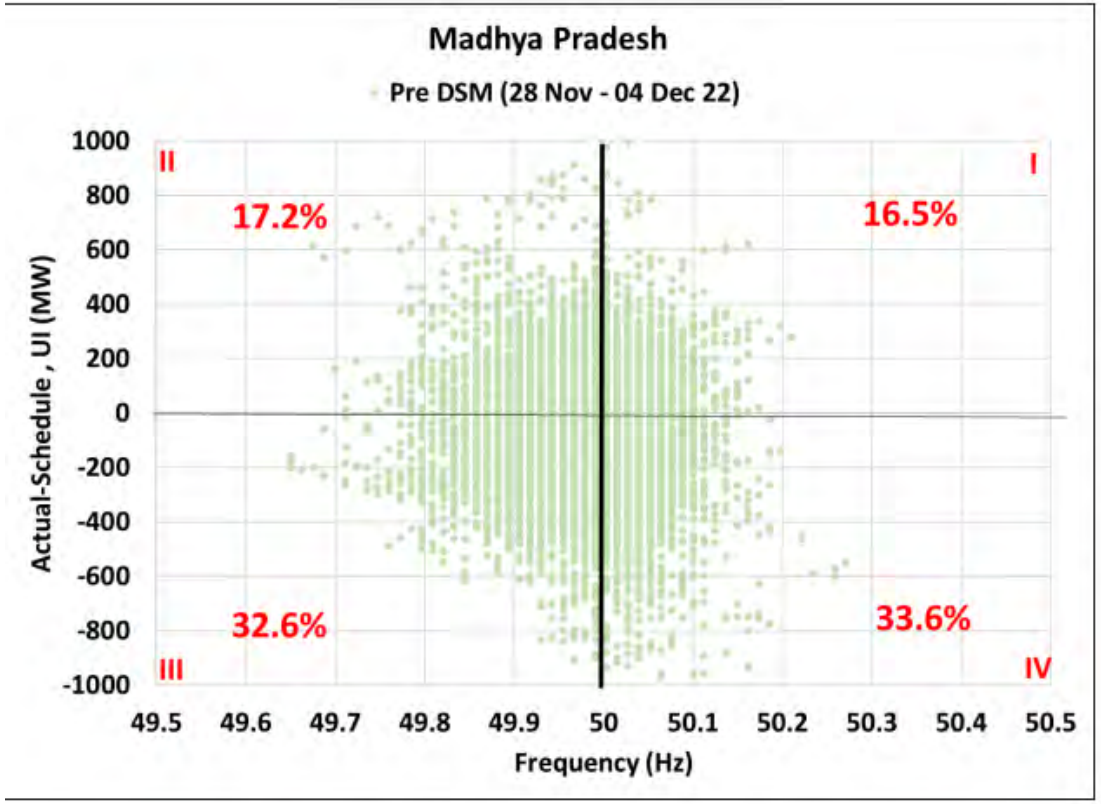


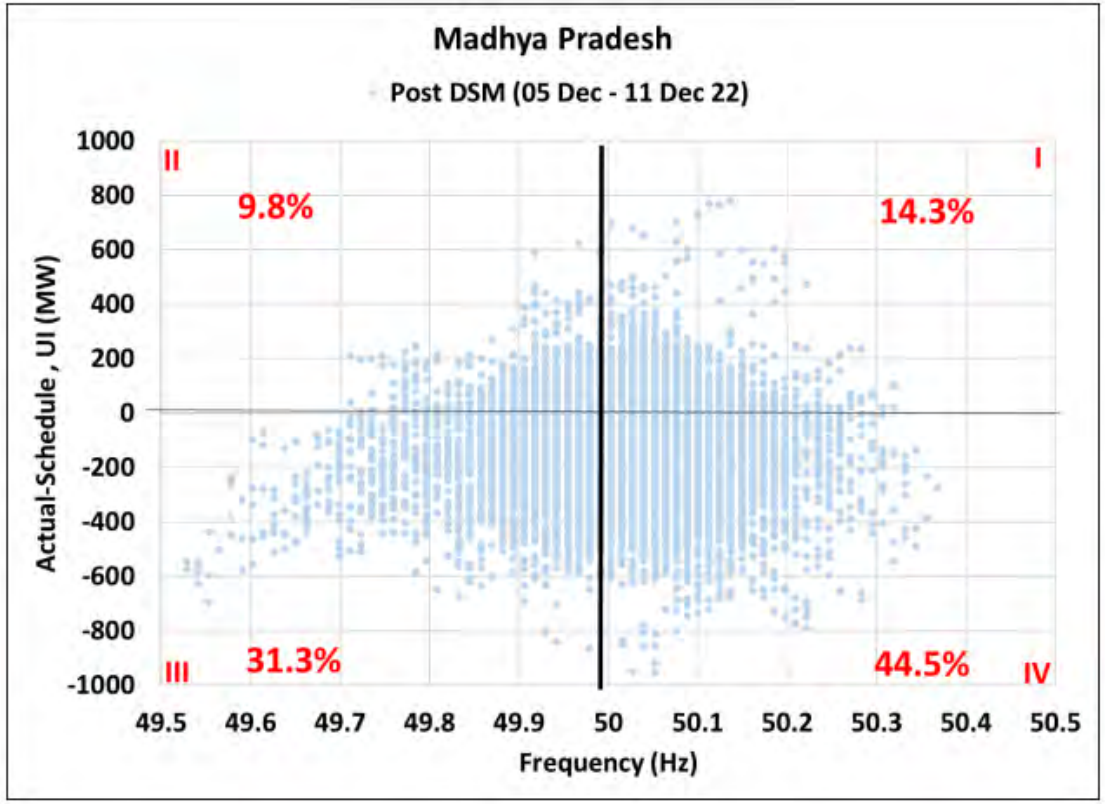
DVC Deviation profile



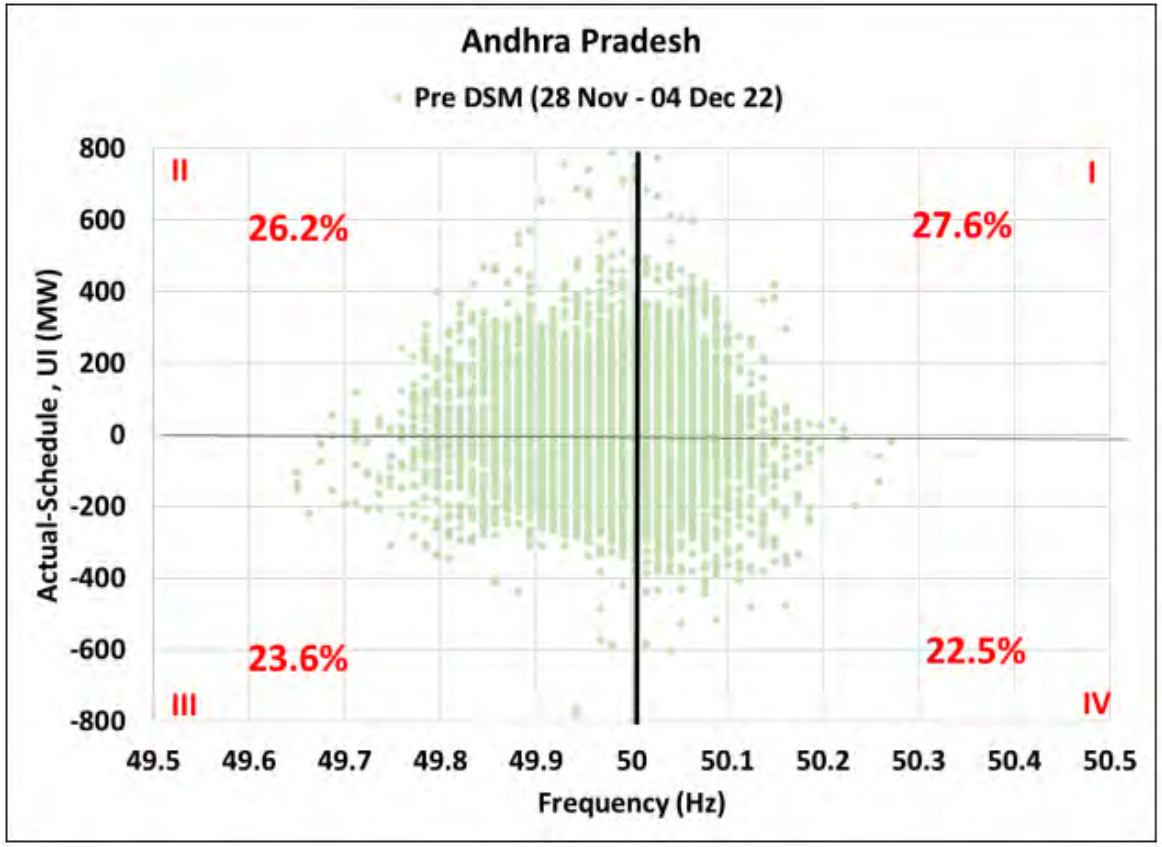


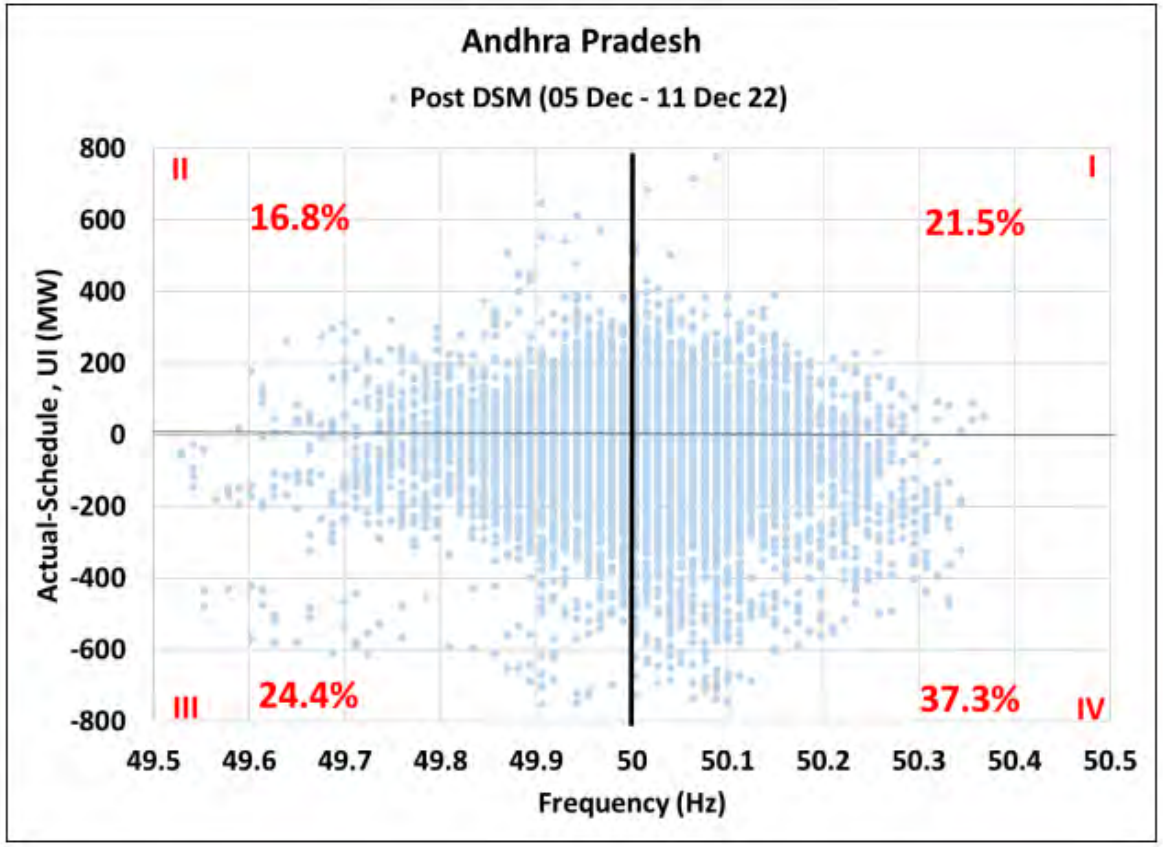
Deviation profile of Madhya Pradesh



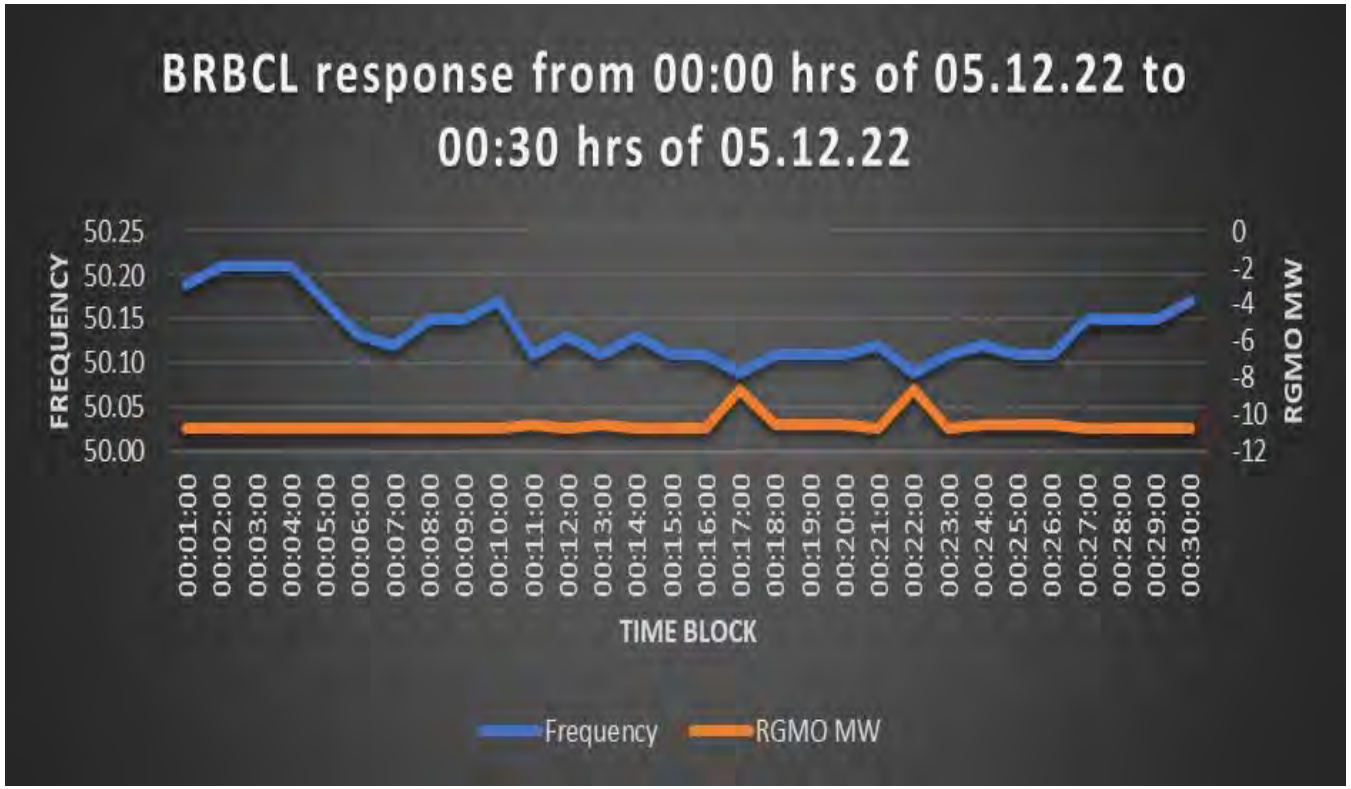


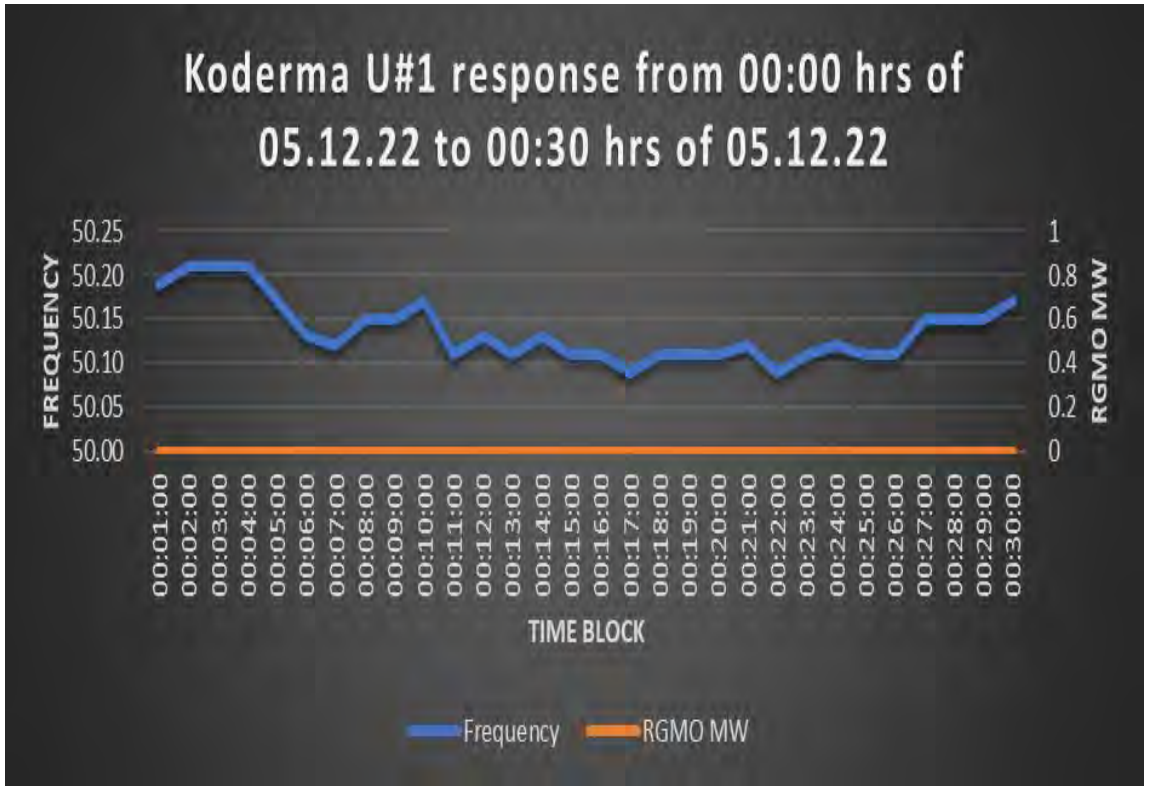
Deviation profile of Andhra Pradesh



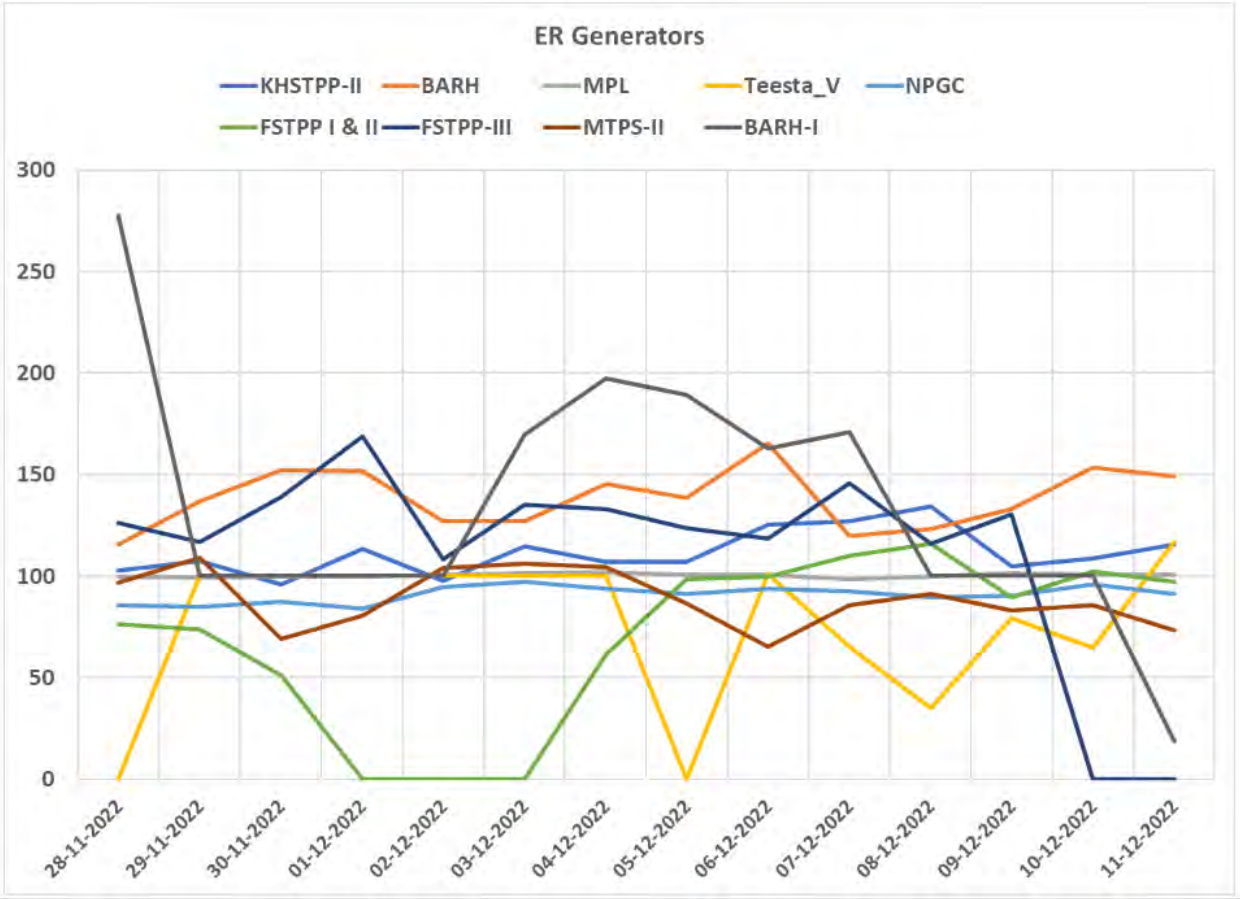


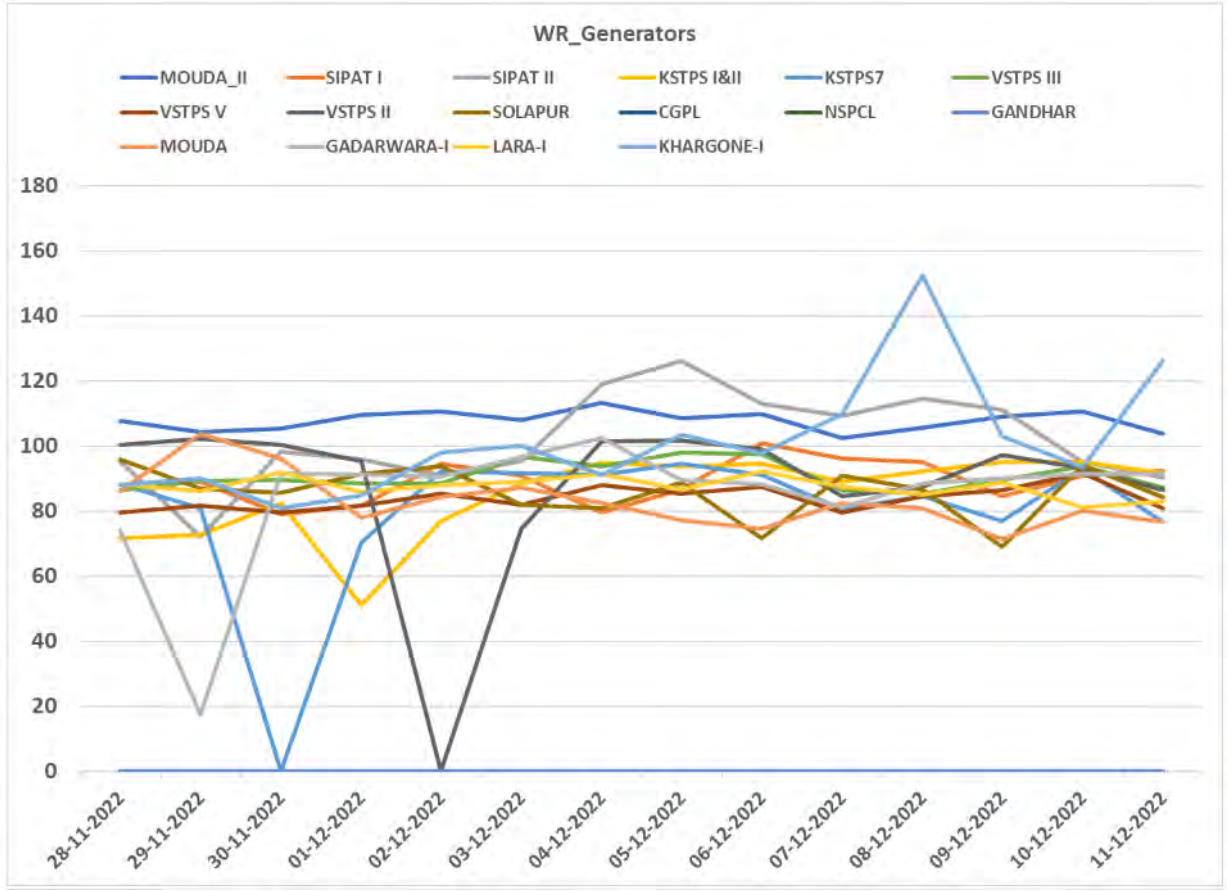
Typical Primary frequency response post DSM





Performance of generators under SRAS



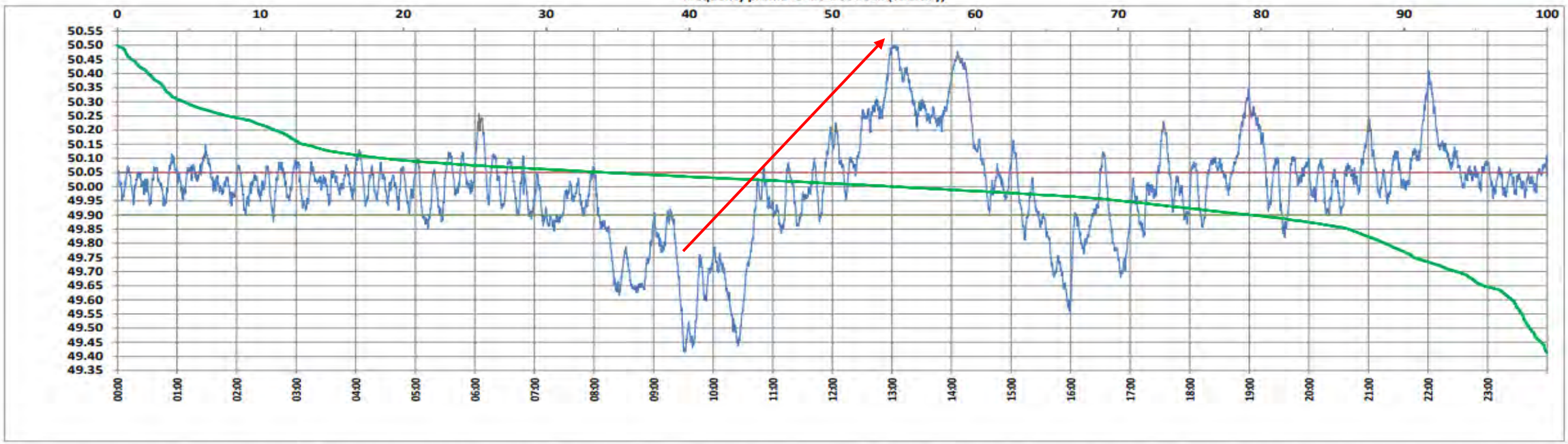


Large frequency variation on 20.12.22

GRID CONTROLLER OF INDIA LIMITED

NATIONAL LOAD DESPATCH CENTRE, NEW DELHI

Frequency profile for 20-Dec-2022 (Tuesday)



<49.7	<49.90	<49.97	49.7-49.8	49.8-49.9	49.9-50.0	50.0-50.1	50.1-50.2	49.90-50.05	49.7-50.2	49.97-50.03	50.05-50.1	>50	>50.03	>50.05	>50.2	<49.95	49.95-50.05	49.90-49.95
6.39	20.71	35.02	4.97	9.35	24.92	35.79	7.53	45.05	82.56	22.78	15.66	54.38	42.20	34.25	11.05	29.84	35.91	9.13

Average Frequency : 49.999	Frequency Variation Index : 0.3023	Standard Deviation : 0.1741	Mileage: 53.6	FDI: 55.0

Instantaneous Frequency		
Max	50.500	13:02:00
Min	49.414	9:31:30

15 minute Average Frequency		
Max	50.446	13:15:00
Min	49.483	9:45:00

No. of excursions	
above 50.03 Hz	112
below 49.97 Hz	87
above 50.00 Hz	109
below 50.00 Hz	108

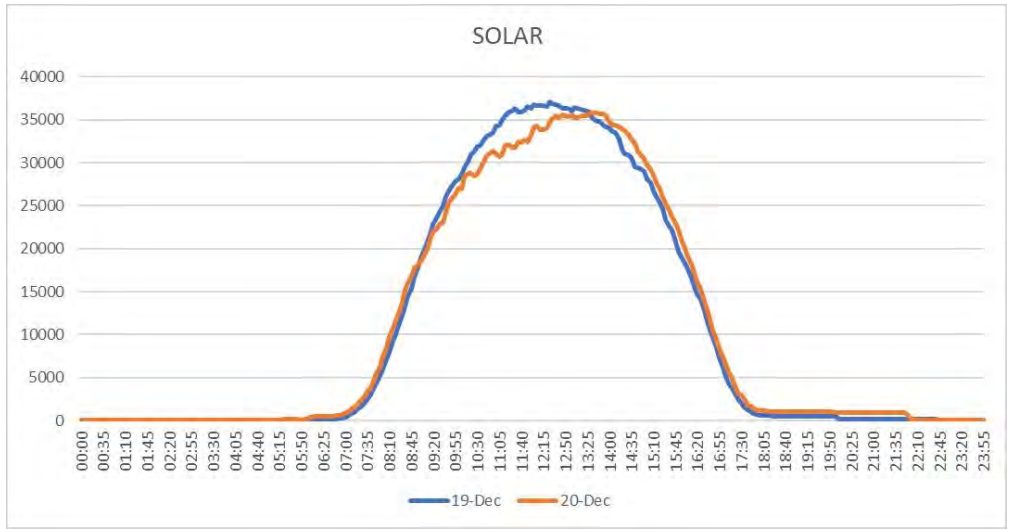
Average time freq per excursion remains	
below 49.97	0:05:48
above 50.03	0:05:26

No. of hours freq outside 49.9-50.05 Hz	13:11:20

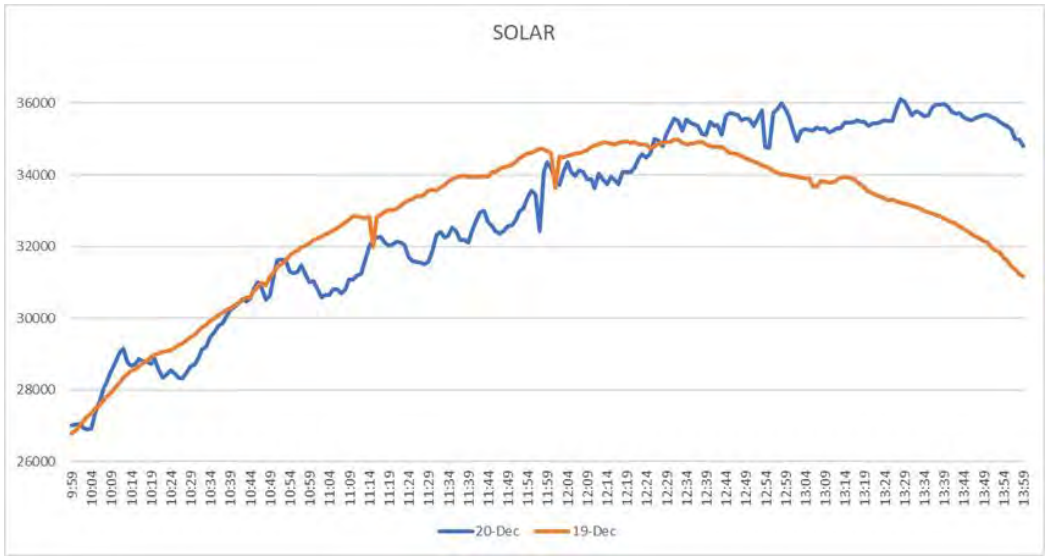
Source : BALIPARA 10 Sec. (8640 samples)

Solar generation pattern on 20.12.2022

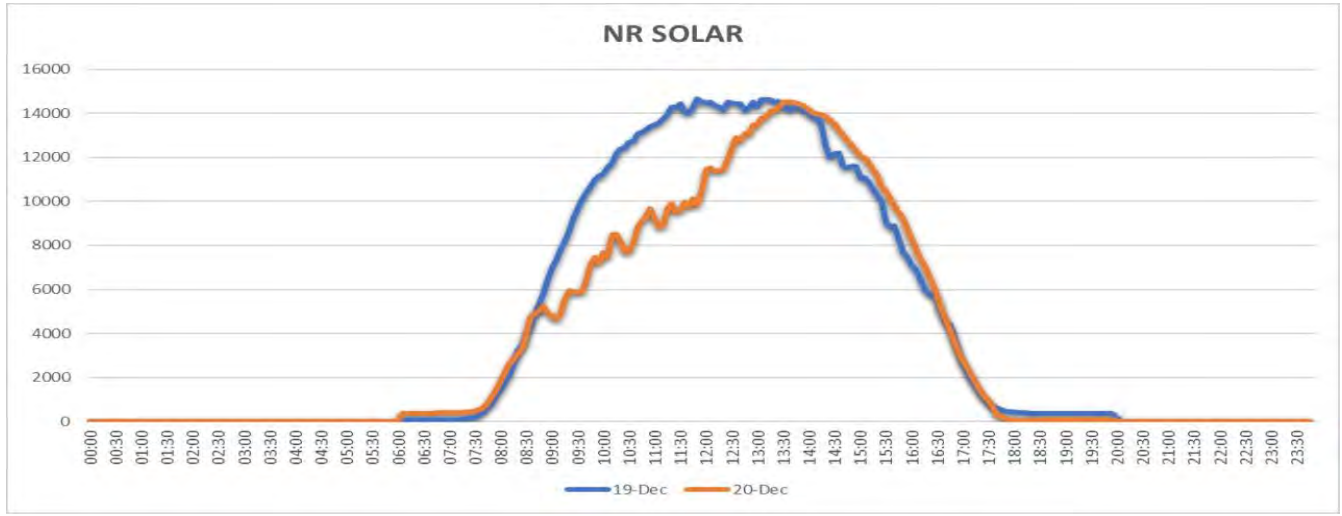
All India Solar



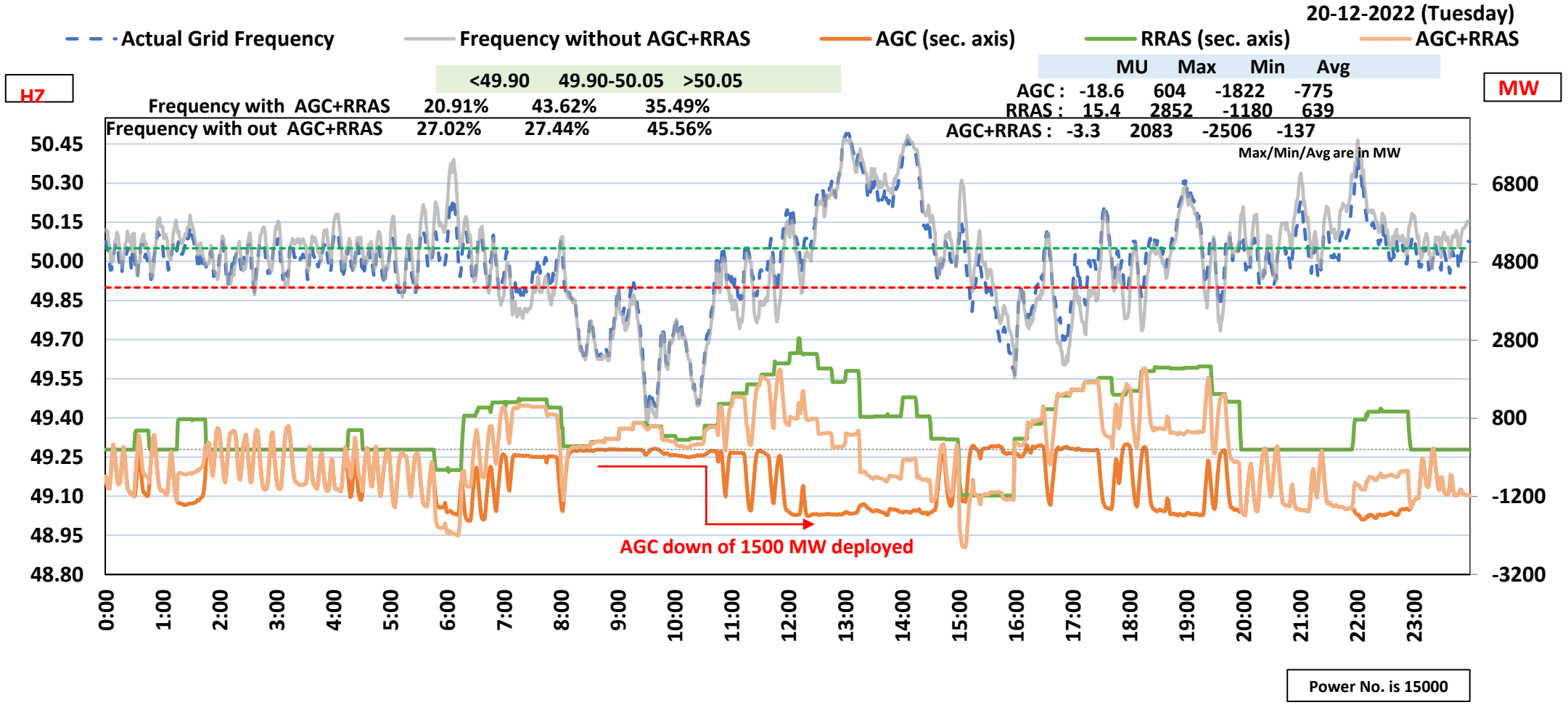
All India Solar



NR Solar



Insufficient Secondary Reserve



Way forward

- Presently 67 power plants with IC ~ 65 GW is wired to operate in SRAS. AGC response in real time in the tune of +1000 MW to -1500 MW. More reserves in SRAS is required for maintaining grid frequency
- Better response from the generators under Primary
- States to operate more close to X-axis and reduce deviation
- Concerns/ Feedback to utilities to be put up to commission

THANK YOU

Annexure B7.2

Generators with SRAS potential

Central Sector

Sl No.	Station	Total Install Capacity	Unit No	Fuel Type	Size	Possible response considering +-5% of capacity(MW)
1	Kahalgaon STPS Stage I	840	1	Coal	210	
			2	Coal	210	
			3	Coal	210	
			4	Coal	210	
2	Farakka Stage I	600	1	Coal	200	
			2	Coal	200	
			3	Coal	200	
3	BRBCL Nabinagar	1000	1	Coal	250	
			2	Coal	250	
			3	Coal	250	
			4	Coal	250	
4	Darlipali STPP	1600	1	Coal	800	
			2	Coal	800	
Total					**4040**	**202**

Jharkhand

Sl No.	Station	Total Install Capacity	Unit No	Source	Size	Possible response considering +-5% of
1	Tenughat	2x210	1	Coal	210	
			2	Coal	210	
2	Subarnarekha	2X65	1	Hydro	65	
			2	Hydro	65	
Total					**550**	**27.5**

Bihar

Sl No.	Station	Total Install Capacity	Unit No	Source	Size	Possible response considering +-5% of
1	Barauni	2x250	8	Coal	250	
			9	Coal	250	
Total					**500**	**25**

DVC

Sl No.	Station	Total Install Capacity	Unit No	Source	Size	Possible response considering +-5% of
1	Mejia	1340	1	Thermal	210	
			2	Thermal	210	
			3	Thermal	210	
			4	Thermal	210	
			5	Thermal	250	
			6	Thermal	250	
2	Mejia-B	1000	7	Thermal	500	
			8	Thermal	500	
3	CTPS B	500	7	Thermal	250	
			8	Thermal	250	
4	Koderma TPS	1000	1	Thermal	500	
			2	Thermal	500	
5	Bokaro"B"	210	3	Thermal	210	
6	Bokaro"A"	500	1	Thermal	500	
7	RAGHUNATHPUR	1200	1	Thermal	600	
			2	Thermal	600	
8	DSTPS	1000	1	Thermal	500	
			2	Thermal	500	
Total					**6750**	**337.5**

West Bengal						
Sl No.	**Station**	**Total Install Capacity**	***Unit No***	**Source**	**Size**	**Possible response considering +-5% of**
1	Kolaghat	840	3	Thermal	210	
			4	Thermal	210	
			5	Thermal	210	
			6	Thermal	210	
2	Sagardighi	1600	1	Thermal	300	
			2	Thermal	300	
			3	Thermal	500	
			4	Thermal	500	
3	Bakreshwar	1050	1	Thermal	210	
			2	Thermal	210	
			3	Thermal	210	
			4	Thermal	210	
			5	Thermal	210	
4	Santaldih	500	5	Thermal	250	
			6	Thermal	250	
5	Bandel	275	3	Thermal	60	
			5	Thermal	215	
6	TLDP III	132	1	Hydro	33	
			2	Hydro	33	
			3	Hydro	33	
			4	Hydro	33	
7	TLDP IV	160	1	Hydro	40	
			2	Hydro	40	
			3	Hydro	40	
			4	Hydro	40	
8	DPL	550	7	Thermal	300	
			8	Thermal	250	
9	HALDIA	600	1	Thermal	300	
			2	Thermal	300	
10	Hiranmayee Enegry Ltd (Previously IPC(H)L)	300	1	Thermal	150	
			2	Thermal	150	
11	Budge-Budge	750	1	Thermal	250	
			2	Thermal	250	
			3	Thermal	250	
Total					**6757**	**337.9**

Odisha						
Sl No.	**Station**	**Total Install Capacity**	***Unit No***	**Source**	**Size**	**Possible response considering +-5% of**
1	IBTPS Stage I	420	1	Thermal	210	
			2	Thermal	210	
2	IBTPS Stage II	1320	1	Thermal	660	
			2	Thermal	660	
3	Balimela	510	1	Hydro	60	
			2	Hydro	60	
			3	Hydro	60	
			4	Hydro	60	
			5	Hydro	60	
			6	Hydro	60	
			7	Hydro	75	
			8	Hydro	75	
4	U-Kolab	320	1	Hydro	80	
			2	Hydro	80	
			3	Hydro	80	
			4	Hydro	80	
5	U-Indravati	600	1	Hydro	150	
			2	Hydro	150	
			3	Hydro	150	
			4	Hydro	150	
6	Rengali	200	1	Hydro	50	
			2	Hydro	50	
			3	Hydro	50	
			4	Hydro	50	
			5	Hydro	50	
7	Burla	281.5	1	Hydro	49.5	
			2	Hydro	49.5	
			3	Hydro	32	
			4	Hydro	32	
			5	Hydro	37.5	
			6	Hydro	37.5	
			7	Hydro	43.5	
Total					**3701.5**	**185.1**

IPPs						
Sl No.	**Station**	**Total Install Capacity**	***Unit No***	**Source**	**Size**	**Possible response considering +-5% of**
1	ADHUNIK	540	1	Thermal	270	
			2	Thermal	270	
2	GMR	1050	1	Thermal	350	
			2	Thermal	350	
			3*	Thermal	350	
3	JITPL	1200	1	Thermal	600	
			2	Thermal	600	
5	TEESTA -III	1200	1	Hydro	200	
			2	Hydro	200	
			3	Hydro	200	
			4	Hydro	200	
			5	Hydro	200	
			6	Hydro	200	
6	DIKCHU	96	1	Hydro	48	
			2	Hydro	48	
8	Chuzachen	110	1	Hydro	55	
			2	Hydro	55	
9	Rongnichu	113	1	Hydro	56.5	
			2	Hydro	56.5	
Total					**4309**	**215.45**

* Unit-3 of GMR is Dedicated to Odisha

Grand Total					26608	1330

Annexure C7

Power Plant	Unit No	PSS tuned (Yes/No)	PSS in Service (Yes/No)	Last PSS Tuning Date	Whether Done in Last 3 Years	Whether Next to be planned	Planned Next PSS Tuning
West Bengal							
Kolaghat-WBPDCL	3	No	Yes	Long Back	No	Yes	To be done within Jan./Feb. 2022 after DAVR replacement.
PPSP	1	No	Yes	2009	No	Yes	Dec-21
PPSP	2	No	Yes	2009	No	Yes	Dec-21
PPSP	3	No	Yes	2009	No	Yes	Dec-21
PPSP	4	No	Yes	2009	No	Yes	Dec-21
DVC							
Raghunathpur-DVC	1	No	No		No Detail	Yes	Dec-22
Raghunathpur-DVC	2	No	No		No Detail	Yes	Dec-22
Waria	4	Yes	Yes	2008	No	Yes	Unit Is out of Service
ISGS							
Kahalgaon NTPC	1	Yes	Yes	2017	Yes	Yes	Apr-21
Kahalgaon NTPC	3	Yes	Yes	2016	Yes	Yes	Jul-21
Kahalgaon NTPC	4	Yes	Yes	2015	No	Yes	Mar-21
Kahalgaon NTPC	6	Yes	Yes	2009	No	Yes	Mar-21
Barh NTPC	1		Yes				
Barh NTPC	4		Yes	2015		Yes	In Next AOH
BRBCL	2	Yes	Yes	2019	Yes	Yes	Jun-21
KBUNL	1	Yes	Yes	2014	No	Yes	2021-22
KBUNL	2	Yes	Yes	2014	No	Yes	2021-22
IPP							
Maithon Power Limited	2	Yes	Yes	2020	Yes	Yes	Last report not satisfactory
JITPL	1	Yes	Yes	2016	Yes	Yes	Jul-21
JITPL	2	Yes	Yes	2016	Yes	Yes	Jul-21
Orissa							
IB TPS	1	Yes	Yes	2011	No	Yes	Mar'2021
IB TPS	2	Yes	Yes	2012	No	Yes	Mar'2021
Upper Indravati	1	Yes	No	2015	No	Yes	To be updated by OHPC
Upper Indravati	2	Yes	No	2015	No	Yes	To be updated by OHPC
Upper Indravati	3	Yes	No	2000	No	Yes	To be updated by OHPC
Upper Indravati	4	Yes	No	2001	No	Yes	To be updated by OHPC
Balimela	1 (60 MW)			No detail		Yes	To be updated by OHPC
Balimela	2 (60 MW)			No detail		Yes	To be updated by OHPC
Balimela	3 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	4 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	5 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	6 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	7 (75 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	8 (75 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Upper Kolab	1	Yes	Yes	2007	No	Yes	March'2023
Upper Kolab	2	Yes	Yes	2007	No	Yes	March'2023
Upper Kolab	3	Yes	Yes	2007	No	Yes	March'2023
Upper Kolab	4	Yes	Yes	2007	No	Yes	March'2023
Sterlite	4 X 600			No detail		Yes	To be updated by SLDC
Jharkhand							
Tenughat	1	Yes	Yes	2017	Yes	Yes	Dec-21
Tenughat	2	Yes	Yes	2017	Yes	Yes	Dec-21
Bhutan							
Tala	1	No	Yes			Yes	To be updated by BPC
Tala	2	No	Yes			Yes	To be updated by BPC
Tala	3	No	Yes			Yes	To be updated by BPC
Tala	4	No	Yes			Yes	To be updated by BPC
Tala	5	No	Yes			Yes	To be updated by BPC
Tala	6	No	Yes			Yes	To be updated by BPC
Chukha	1	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	2	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	3	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	4	No	Yes	2005	No	Yes	To be updated by BPC
Mangdechu	1	No	Yes			Yes	Sep-21
Mangdechu	2	No	Yes			Yes	Sep-21

Annexure D.1

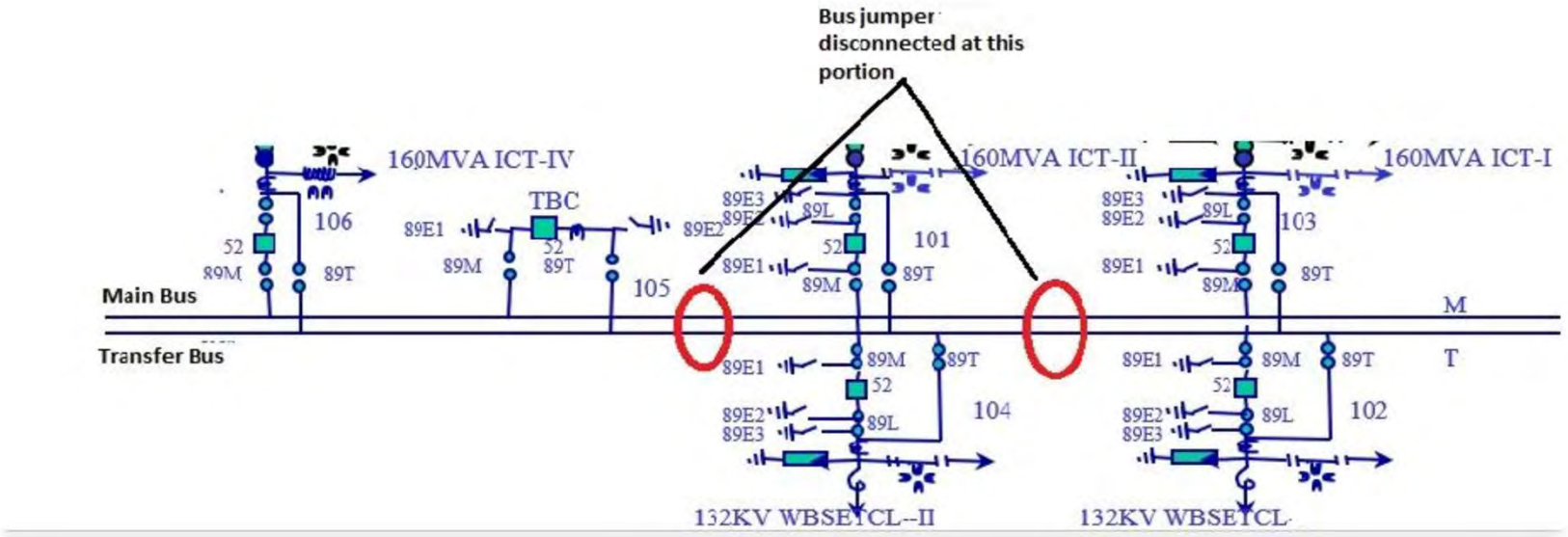
Anticipated Peak Demand (in MW) of ER & its constituents for January 2023

1	BIHAR	Demand (MW)	Energy Requirement (MU)
	NET MAX DEMAND	5250	2930
	NET POWER AVAILABILITY- Own Sources	607	251
	Central Sector+Bi-Lateral	6506	3277
	SURPLUS(+)/DEFICIT(-)	1863	598
2	**JHARKHAND**		
	NET MAXIMUM DEMAND	1830	1000
	NET POWER AVAILABILITY- Own Source	462	185
	Central Sector+Bi-Lateral+IPP	1012	621
	SURPLUS(+)/DEFICIT(-)	-356	-194
3	**DVC**		
	NET MAXIMUM DEMAND	3185	2090
	NET POWER AVAILABILITY- Own Source	4832	3036
	Central Sector+MPL	284	170
	Bi- lateral export by DVC	1860	1384
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	71	-268
4	**ODISHA**		
	NET MAXIMUM DEMAND (OWN)	4000	2418
	NET MAXIMUM DEMAND (In Case of CPP Drawal)	5100	3150
	NET POWER AVAILABILITY- Own Source	3190	1994
	Central Sector	1792	1231
	SURPLUS(+)/DEFICIT(-) (OWN)	982	807
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal)	-118	75
5	**WEST BENGAL**		
5.1	**WBSEDCL**		
	NET MAXIMUM DEMAND	5555	3060
	NET MAXIMUM DEMAND (Incl. Sikkim)	5560	3064
	NET POWER AVAILABILITY- Own Source (Incl. DPL)	4619	2551
	Central Sector+Bi-lateral+IPP&CPP+TLDP	1893	1019
	EXPORT (To SIKKIM)	5	4
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	952	506
5.2	**CESC**		
	NET MAXIMUM DEMAND	1350	670
	NET POWER AVAILABILITY- Own Source	700	476
	IMPORT FROM HEL	270	167
	TOTAL AVAILABILITY OF CESC	970	643
	DEFICIT(-) for Import	-380	-27
	WEST BENGAL (WBSEDCL+CESC+IPCL)		
	(excluding DVC's supply to WBSEDCL's command area)		
	NET MAXIMUM DEMAND	6905	3730
	NET POWER AVAILABILITY- Own Source	5319	3027
	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	2163	1186
	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXPORT	577	483
	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXPORT	572	479
6	**SIKKIM**		
	NET MAXIMUM DEMAND	132	65
	NET POWER AVAILABILITY- Own Source	2	1
	Central Sector	173	88
	SURPLUS(+)/DEFICIT(-)	44	24
	EASTERN REGION		
	NET MAXIMUM DEMAND	20884	12232
	NET MAXIMUM DEMAND (In Case of CPP Drawal of Odisha)	21963	12964
	BILATERAL EXPORT BY DVC (Incl. Bangladesh)	1860	1384
	EXPORT BY WBSEDCL TO SIKKIM	5	4
	EXPORT TO B'DESH & NEPAL OTHER THAN DVC	642	478
	NET TOTAL POWER AVAILABILITY OF ER	24482	13683
	(INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)		
	SURPLUS(+)/DEFICIT(-)	3593	1447
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal of Odisha)	2514	715

ANNEXURE D2

Approved Maintenance Schedule of Thermal Generating Units of ER during 2022-23 in the month of January'2023												
System	Station	Unit No.	Capacity(MW)	Period (as per LGBR 2021-22)		No. of Days	Approved Period		No. of Days	Reason	Whether as per LGBR or not	Remarks
				From	To		From	To				
WBPDCL	Kolaghat TPS	3	210	07.01.2023	16.01.2023	10	-	-	-	PG Test	NO	NOT Availing
	Kolaghat TPS	5	210	17.01.2023	05.02.2023	20	17.01.2023	20.02.2023	30	AOH/BOH	YES	
OPGC	IB TPS	1	210	01.01.2023	25.01.2023	25	-	-	-	Annual Maintenance	NO	Postponed to 11th March 2023.
NTPC	Farakka STPS	3	200	01.01.2023	04.02.2023	35	08.01.2023	07.02.2023	30	Boiler+FGD+MOP&TG Bearing	NO	Unit-2 would be taken in S/D in place of unit-3
	Kahalgaon STPS	1	210	05.01.2023	03.02.2023	30	15.02.2023	30.03.2023	45	Boiler + Generator Maintenance	NO	Unit-3 would be taken in S/D in place of unit-1
GMR	GMR	2	350	01.01.2023	14.02.2023	45				Annual Turbine Overhauling		
MPL	MPL	1	525	-	-		15.01.2023	28.02.2023	45	AOH	NO	
DVC	MTPS	8	500	20.12.2022	24.01.2023	25	05.01.2023	15.02.2023	40	COH	NO	
BRBCL	BRBCL	2	250	25.08.2022	03.10.2022	38	07.02.2023	15.03.2023	37	Boiler Modification	NO	

Requirement of shutdown for commissioning of 132KV GIS at Malda SS



Phase-I: (complete shutdown of 132KV Bus)- Completed

1. 132 KV complete Bus shutdown shall be taken for 4 hr in early morning
2. Disconnection of Jumpers at 2 points –

a) Between 132 KV WBSETCL -1 & 160 MVA ICT-II

b) Between 132 KV WBSETCL -2 & 132 KV TBC BAY

1. After splitting of Bus, all the elements will be taken in service through split bus condition.

Phase-II: (Bus Section-I)–GIB Erection: 16.12.22 at 07:00 hrs to 19.12.22 at 16:00 hrs on ODB - Completed

1. Shutdown of 220/132KV ICT-1 and 132KV Malda Ckt-1 on daily basis.
2. 132KV WBSETCL Ckt-II will remain in service through ICT-II. ICT-IV will remain in service with no load condition. As per requirement, 132KV WBSETCL Ckt-II also can be taken in service through ICT-IV via TBC as a backup of ICT-II.

Phase-III: (Bus Section-I&II) GIB Erection: 26.12.22 at 07:00 hrs to 27.12.22 at 16:00 hrs on ODB

1. Shutdown of 220/132KV ICT-1 & 2 and 132KV Malda Ckt-2 on daily basis.
2. 132KV WBSETCL Ckt-I will remain in service through ICT-IV and TBC Bay.
3. 02 nos. GIB erection falling under Bus Section – I & II both is pending. So, above shutdown is required for same.
4. Image of erected portion

02 nos. GIB (01 no. for Malda Ckt-2 & another is for Manikchak-1) erection under Bus Section – I & II both is pending.

Phase-IV: (Bus Section-II) GIB Erection: 28.12.22 at 07:00 hrs to 29.12.22 at 16:00 hrs on ODB

1. Shutdown of 220/132KV ICT-2 and 132KV Malda Ckt-2 on daily basis.
2. 132KV WBSETCL Ckt-1 will remain in service through ICT-1. ICT-4 will remain in service with no load condition. As per requirement, 132KV WBSETCL Ckt-1 also can be taken in service through ICT-4 via TBC as a backup of ICT-1.

Phase-V : (Bus Section-II & III) GIB erection From 30/12/22 at 07:00 hrs to 31/12/22 at 16:00 hrs ODB

1. Shutdown of 220/132KV ICT-4 , TBC Bay , ICT-2 & Malda Ckt-2 on daily basis.
2. 132KV WBSETCL Ckt-1 will remain in service through ICT-1.
3. Shutdown of both the Bus Section – II & III is required for erection of the GIB duct under both Bus Section-II & III.

Phase-VI : GIB erection of ICT-I From 01/01/22 at 07:00 hrs to 15/01/23 at 16:00 hrs OCB

1. Shutdown of 220/132KV ICT-1 on continuous basis for a period of 15 days till commissioning.
2. Shutdown of 132KV WBSETCL Ckt-1 on daily basis & will be taken into service through ICT-4 & TBC daily .
3. ICT-2, 4 & Malda Ckt-2 will remain in service for power flow.
4. Dismantling of ICT-1 existing Bay equipment including support structures.
5. Construction of foundations for GIB support structures.
6. Erection of GIB Support structures.
7. Erection of ICT-1 Bay GIB & Air Bushing.
8. HV testing of ICT-I bay including GIS Bus-I &II and 132KV WBSETCL Ckt-1, Manikchak 1&2.
9. Commissioning of ICT-I, GIS Bus-I &II and Malda Ckt-1.

Phase-VII : GIB Erection of ICT-II From 16/01/23 at 07:00 hrs to 30/01/23 at 16:00 hrs OCB

1. Shutdown of 220/132KV ICT-2 on continuous basis for a period of 15 days till commissioning.
2. Shutdown of 132KV WBSETCL Ckt-2 on daily basis & will be taken into service through ICT-4 & TBC daily .
3. ICT-1 & Malda Ckt-1 will remain in service through GIS for power flow.
4. Dismantling of ICT-2 existing Bay equipment including support structures.
5. Construction of foundations for GIB support structures.
6. Erection of GIB Support structures.
7. Erection of ICT-2 Bay GIB & Air Bushing.

Phase-VIII: GIB erection of ICT-IV From 31/01/23 at 07:00 hrs to 14/02/23 at 16:00 hrs OCB

1. Shutdown of 220/132KV ICT-IV, ICT-II & Malda-II on continuous basis for a period of 10 days till commissioning.
2. ICT-I & Malda-I will be in service through GIS for continue power flow.
3. Dismantling of existing bay equipment including support structures.
4. Construction of foundation for GIB support structures.
5. Erection of GIS supports structures.
6. Erection of GIB of ICT-IV bay including GIS to AIR bushing
7. HV testing of ICT-II, IV and 132KV Malda Ckt-II.
8. Commissioning of ICT-II, IV, 132KV Malda ckt-II.

Annexure B.6

Regarding restoration of theft/missing tower members at Tower Loc. no. 5&6 of 220KV S/C Lalmatia - Farakka Transmission line.

Lalmatia GSS <lalmatiatsd@gmail.com>

Thu 08-12-2022 14:38

To:Dharmendra Kumar Javeri {डी.के. जावेरी} <javeri@powergrid.in>; eeetdlalmatiajusnl1@gmail.com <eeetdlalmatiajusnl1@gmail.com>;

Cc:esetcdumka1@gmail.com <esetcdumka1@gmail.com>;

4 attachments

IMG_20221205_131636.jpg; IMG_20221205_131252.jpg; IMG_20221205_131432.jpg; IMG_20221205_131341.jpg;

Sir,

Please refer to the trailing mail on 07.11.2022 as received from your end,during the inspection of 220KV single circuit Lalmatia - Farakka Transmission line at Tower loc. no. 5 & 6 and found that a huge number of Tower members were missing/ theft by unknown miscreants. The same has been reported to the concerned police station. Restoration of theft/missing Tower members at tower loc. no. 5 & 6 of above said transmission line have been carried out by our working agency.As we know that 220KV Lalmatia- Farakka Trans. Line is out of service since 21.04.2021.Line idle charged between Tower loc.no. 233 to 180 with 11KV LT line and rest of the tower location are abandoned. The area behind NTPC/Farakka Plant comes under heavy theft prone zone and day to day theft incidents occurred in said Transmission line by unknown miscreants.Due to day by day theft incidents in above transmission line it is not possible to save the mentioned Tower loc. 5 &6 in near future.

This is for your kind information and necessary action.

REGARDS,

Manager
Trans. Sub - Division
Lalmatia

Fw: Regarding huge no. of missing Tower members in the towers of 220 kV Farakka Lalmatia Line(Loc 05 & 06) crossing over 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID

Dharmendra Kumar Javeri {डी.के. जावेरी}

Mon 07-11-2022 17:28

To:Prosun Kumar Mallik {प्रोसुन कुमार मलिक} <prosun.mallik@powergrid.in>; Sukdev Mondal {सुकदेव मंडल} <sukdevmondal@powergrid.in>;

5 attachments

IMG-20221107-WA0023.jpg; IMG-20221107-WA0019.jpg; IMG-20221107-WA0020.jpg; IMG-20221107-WA0018.jpg; IMG-20221107-WA0017.jpg;

डी०के०जावेरी/D.K.Javeri
मुख्य महाप्रबंधक (सं०प्र० व सं०से)/CGM(AM & CS),
पूर्वी क्षेत्र-II, कोलकाता/Eastern Region-II, Kolkata
मोबाइल - 9425409535/700089522

From: Dharmendra Kumar Javeri {डी.के. जावेरी}
Sent: 07 November 2022 17:28
To: lalmatiatsd@gmail.com; sldcranchi@gmail.com
Cc: Ram Prakash; N S Mondal; rajibsutradhar@posoco.in; Amaresh Mallick (अमरेश मल्लिक); Shyamal Konar (श्यामल कोनार); Saugato Mondal (सौगाता मंडल); Asit Kumar Maiti {असित कुमार मैती}; Sudeep Nandi {सुदीप नंदी}
Subject: Regarding huge no. of missing Tower members in the towers of 220 kV Farakka Lalmatia Line(Loc 05 & 06) crossing over 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID

Sir,
Please refer the trailing mail as received from our TL maintenance Engineer at Farakka TLM.As stated in the mail huge no. of missing Tower members have been noticed in 220 kV Farakka Lalmatia Line(Loc 05 & 06) which is crossing over 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID. Due to serious member theft at Loc No. 05 & Loc No.-06 in 220 kV Farakka Lalmatia Line there is high chance of the towers getting collapse over POWERGRID line 400 kV S/C Farakka Sagardighi I & II TL resulting in long outage of POWERGRID line.
In view of above you are requested to take immediate measure for prevention of tower collapse at Loc No. 05 & 06 of 220 kV Farakka Lalmatia Line.Our concerned TLM Engineer at Farraka is Sh Sudeep Nandi,Mob No.-8948773907.

Regards,
डी०के०जावेरी/D.K.Javeri
मुख्य महाप्रबंधक (सं०प्र० व सं०से)/CGM(AM & CS),
पूर्वी क्षेत्र-II, कोलकाता/Eastern Region-II, Kolkata
मोबाइल - 9425409535/700089522

From: Sudeep Nandi {सुदीप नंदी} <sudeepnandi@powergrid.in>
Sent: 07 November 2022 16:48
To: Prosun Kumar Mallik {प्रोसुन कुमार मलिक} <prosun.mallik@powergrid.in>; Sukdev Mondal {सुकदेव मंडल} <sukdevmondal@powergrid.in>
Cc: K K Prusti {के.के.} <kkp@powergrid.in>; S Sen {एस. सेन} <subhendra@powergrid.in>; Aziz Al Aman {अजीज अल अमन} <aziz@powergrid.in>; MILAN GORAI {मिलन गोराई} <m.gorai@powergrid.in>; Suryakanta Khuntia {सूर्यकांत खुंटिया} <suryakanta@powergrid.in>
Subject: Regarding huge no. of missing Tower members in the towers of 220 kV Farakka Lalmatia Line(Loc 05 & 06) crossing over 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID

Dear Sir,
During patrolling of 400 kV S/C Farakka Sagardighi I & II TL , huge no. of missing members have been observed in the Powerline crossing towers of 220 KV Farakka Lalmatia TL(owned by JUSNL) situated in village:Jorpukuria,Farakka crossing over Loc 03 & 04 of both 400 kV S/C Farakka Sagardighi I & II TL of POWERGRID. Any incident of collapse of towers of the mentioned crossing towers of Farakka Lalmatia line shall damage our existing 400 kV Farakka Sagardighi TL which is already more than 35 years old.
Earlier also, an incident of Tower collapse of 220 kV Farakka Lalmatia line over our 400 kV S/C Farakka Durgapur 1 & 2 TL had occurred in the year 2021 which had severely damaged the our existing transmission lines .Restoration of the lines were carried out under extreme ROW situations last year. Any incident of the tower collapse shall lead to severe damage to our old Farakka Sagardighi I & II TL.

It is requested to kindly intimate the concerned transmission utility for rectification of the missing members in the Powerline crossing Towers of 220 kV Farakka lalmatia TL crossing over POWERGRID owned Transmission lines at Farakka.

Thanks & Regards,
Sudeep Nandi
Engineer
PowerGrid Corporation of India Ltd.
Farakka TL O&M Office
Mob:8948773907

दावात्याग : यह ईमेल पावरग्रिड के दावात्याग नियम व शर्तों द्वारा शासित है जिसे http://apps.powergrid.in/Disclaimer.htm पर देखा जा सकता है।
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Annexure B.8

Format:

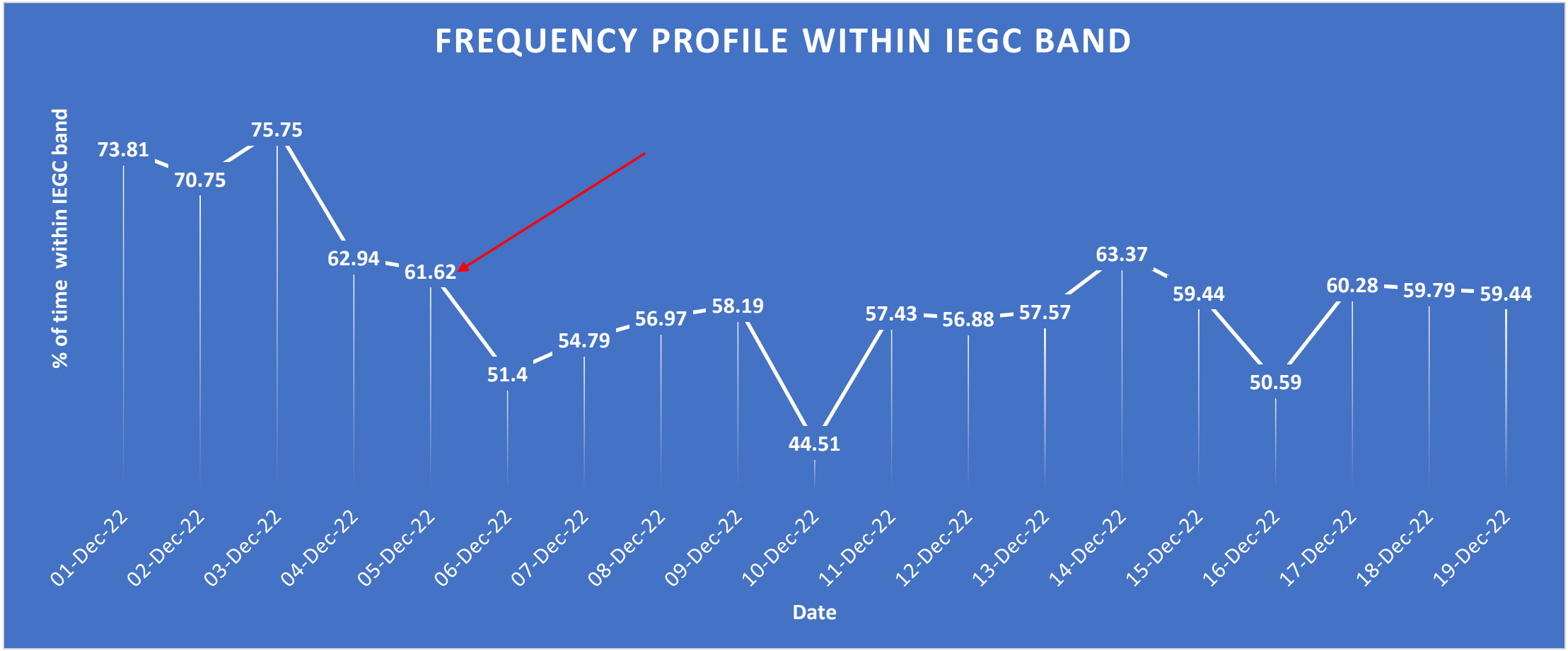
State/DISCOM	Month	Surplus/ Shortage (in MW)		Remarks
		During Peak Hours	During Off-Peak Hours	
	Dec, 2021			
	Jan, 2022			
	Feb, 2022			
	Mar, 2022			
	Apr, 2022			
	May, 2022			
	Jun, 2022			
	Jul, 2022			
	Aug, 2022			
	Sep, 2022			
	Oct, 2022			
	Nov, 2022			

Note: Kindly mention the Peak and Off-Peak hours of respective State/DISCOMs.

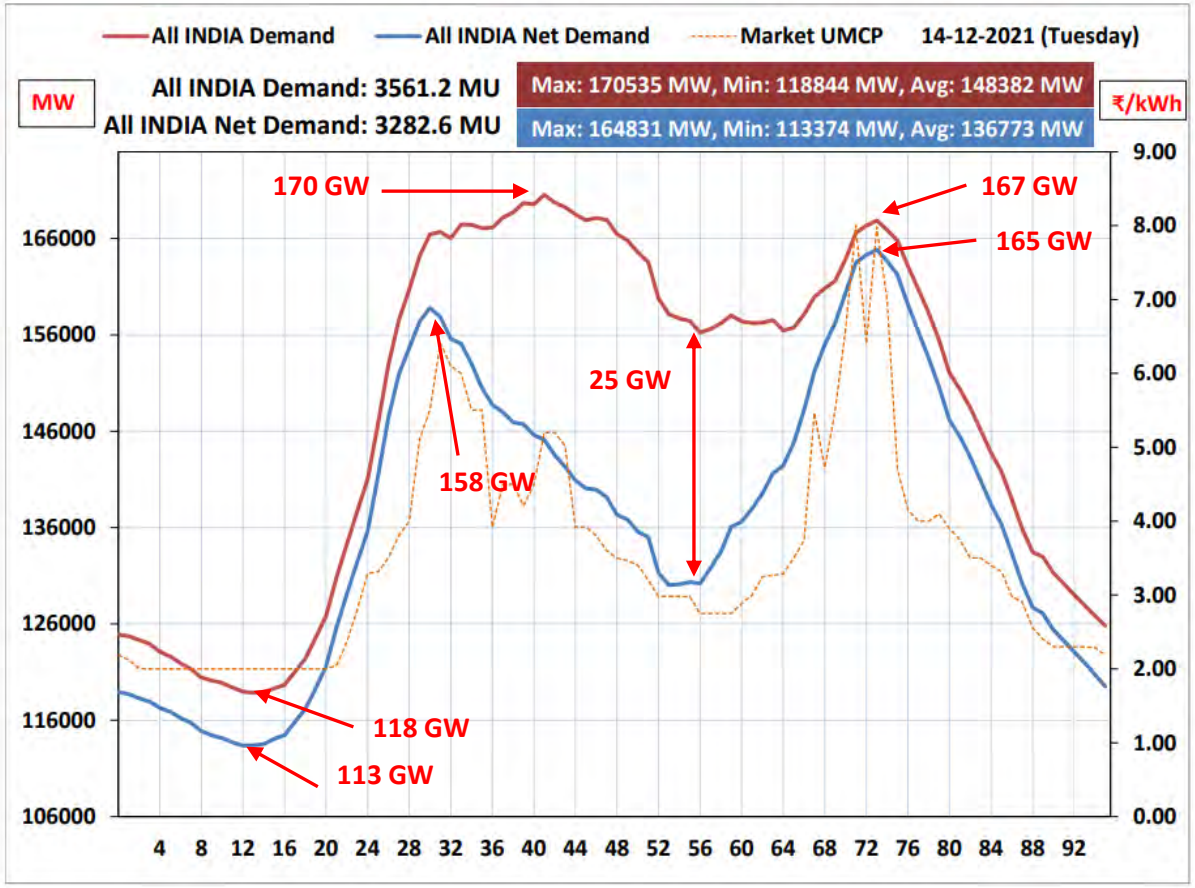
Annexure-B7.1

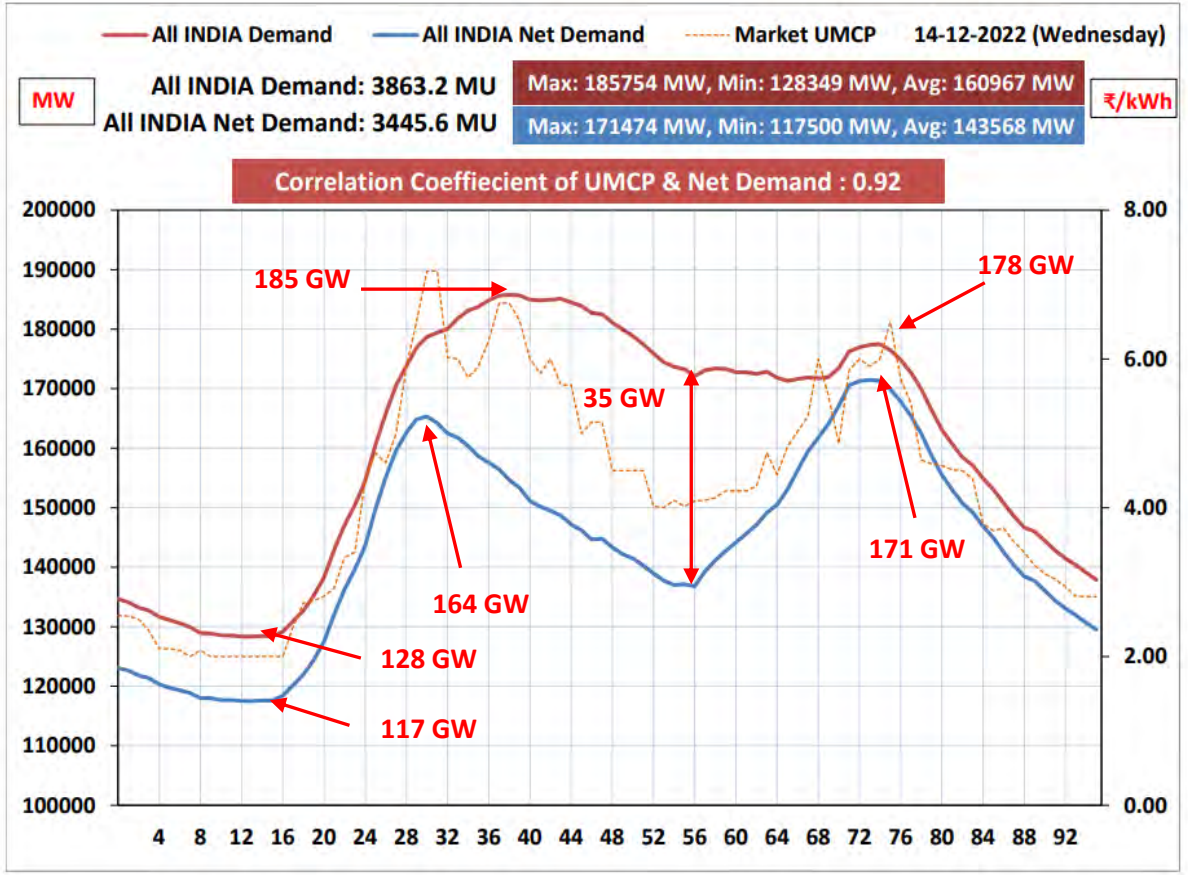
Analysis of Grid Behaviour after DSM implementation w.e.f 05.12.2022

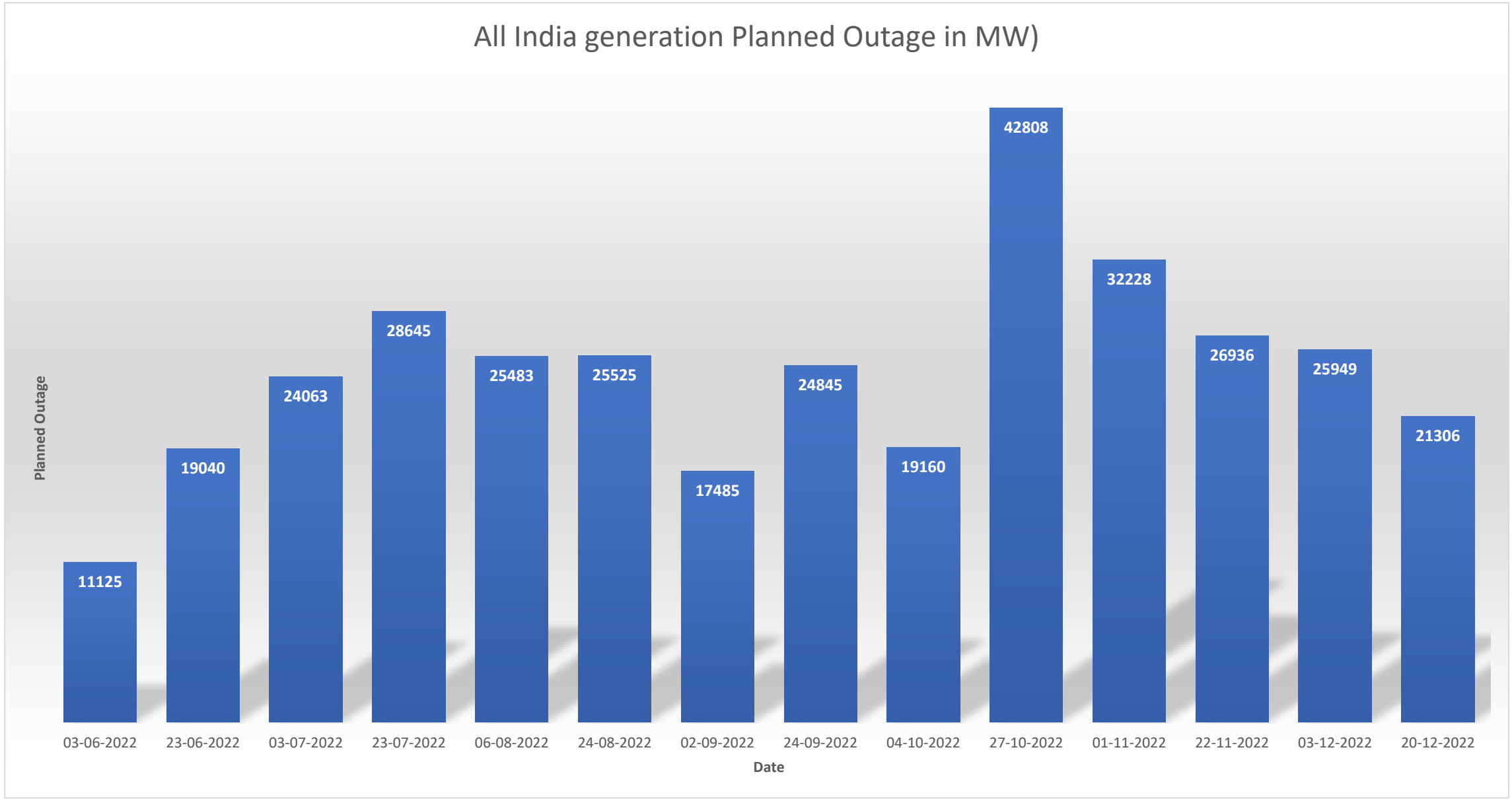
Frequency percentage within IEGC band



Demand Comparison 2021 & 2022

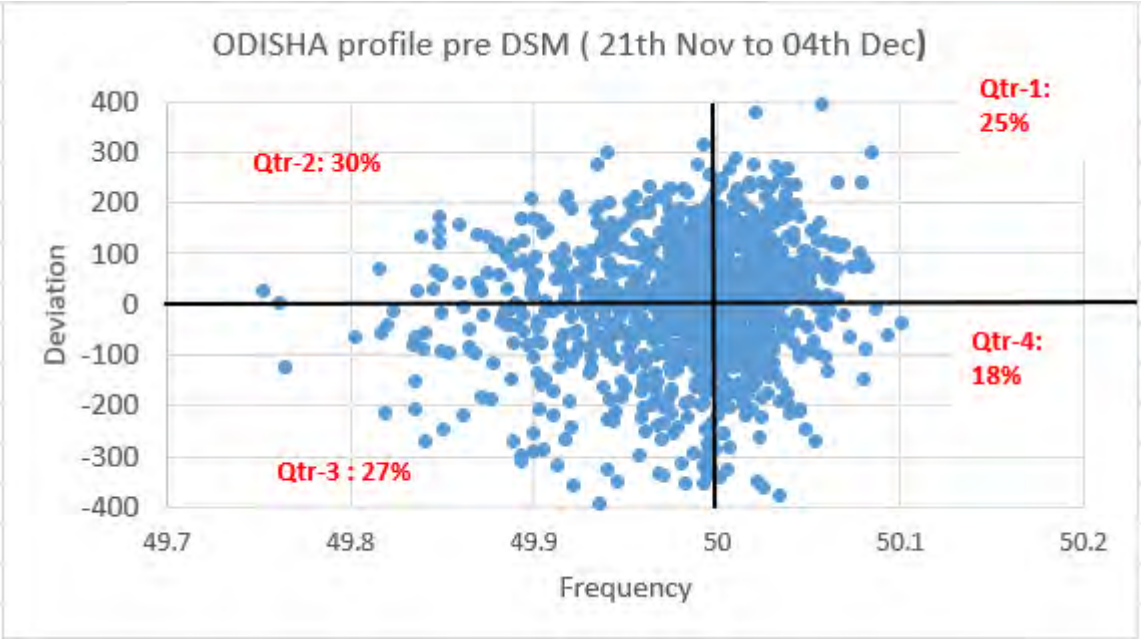


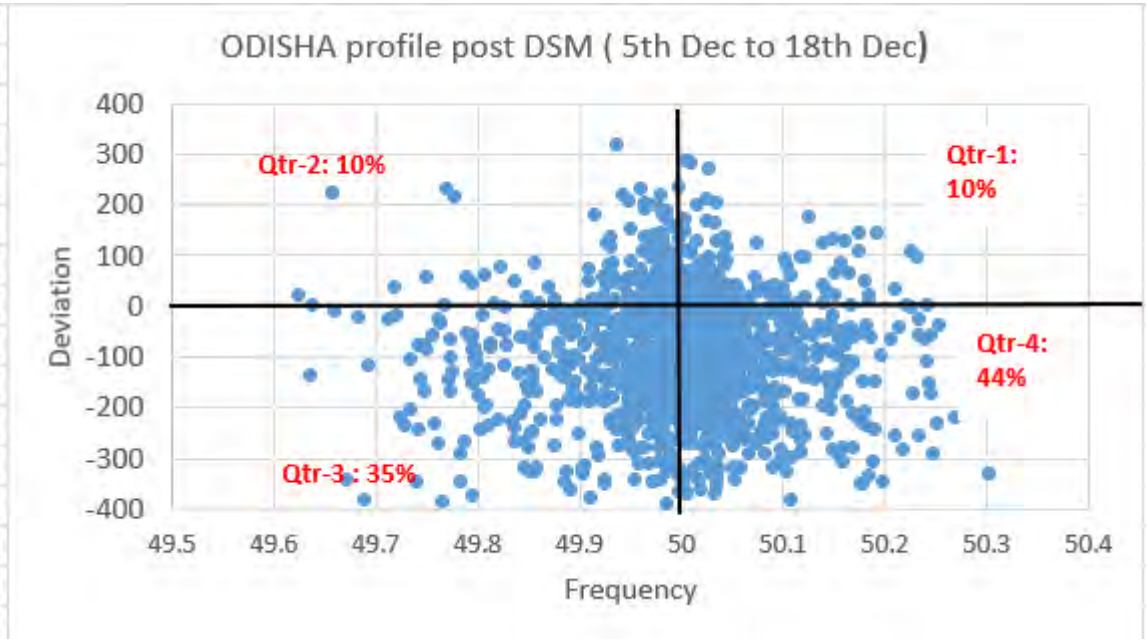



All India generation Planned Outage in MW)
Planned Outage
11125
19040
24063
28645
25483
25525
17485
24845
19160
42808
32228
26936
25949
21306
03-06-2022
23-06-2022
03-07-2022
23-07-2022
06-08-2022
24-08-2022
02-09-2022
24-09-2022
04-10-2022
27-10-2022
01-11-2022
22-11-2022
03-12-2022
20-12-2022
Date

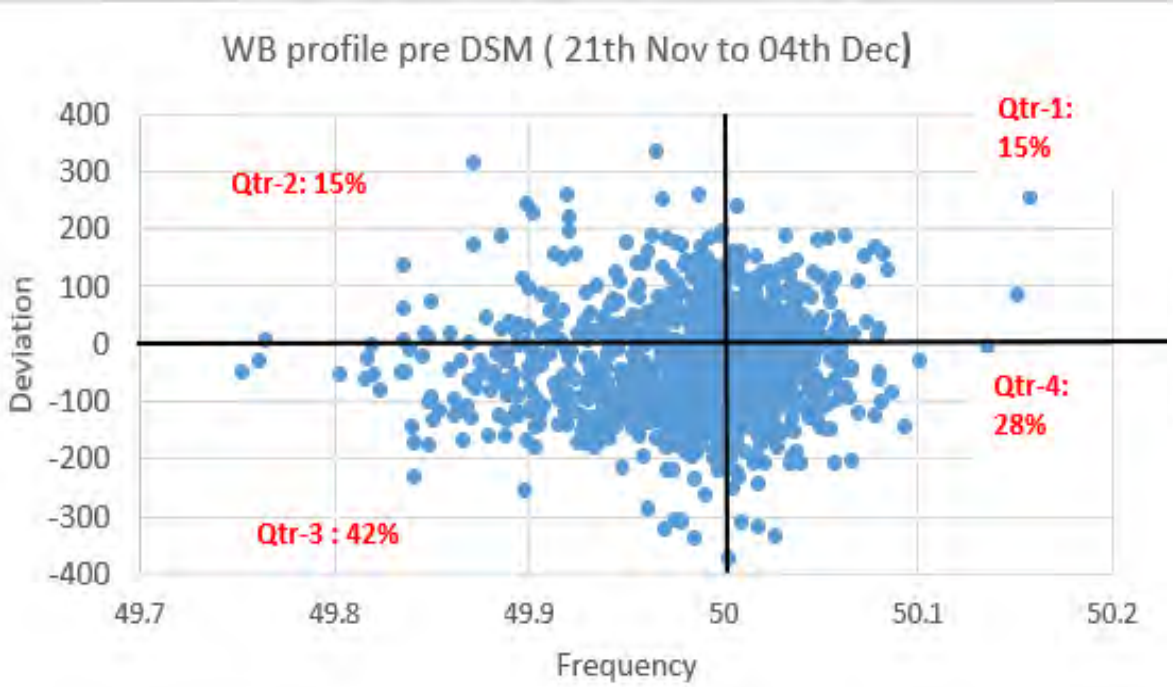
Constituents behaviour Post& Pre DSM

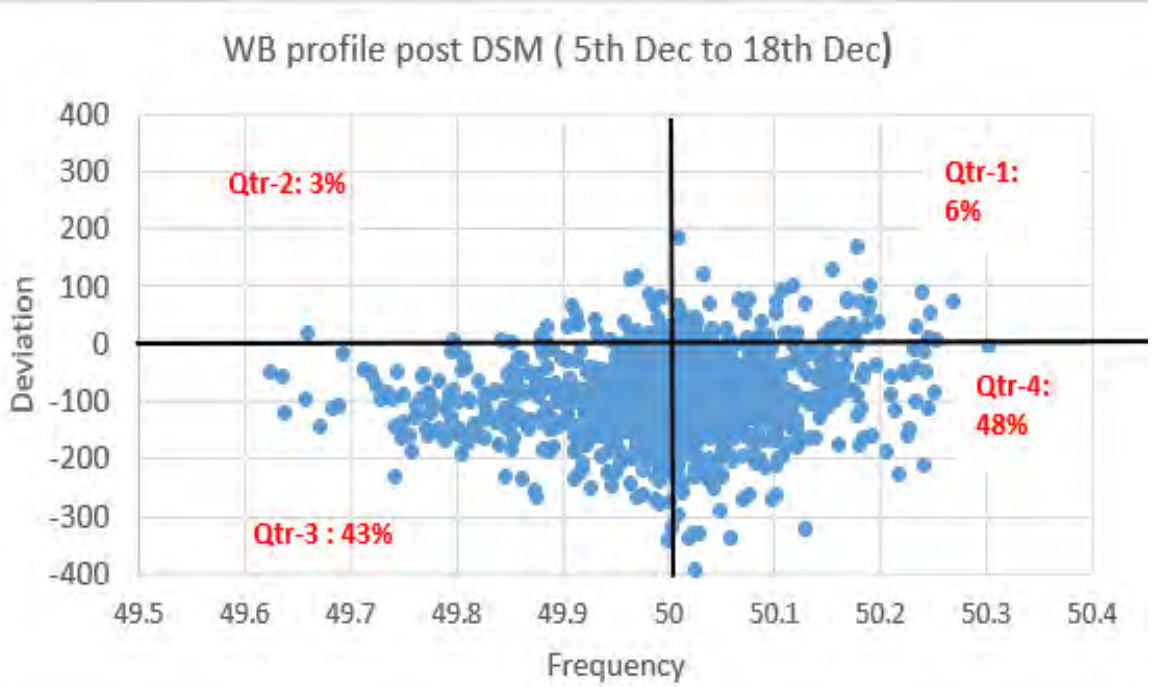
GRIDCO Deviation profile



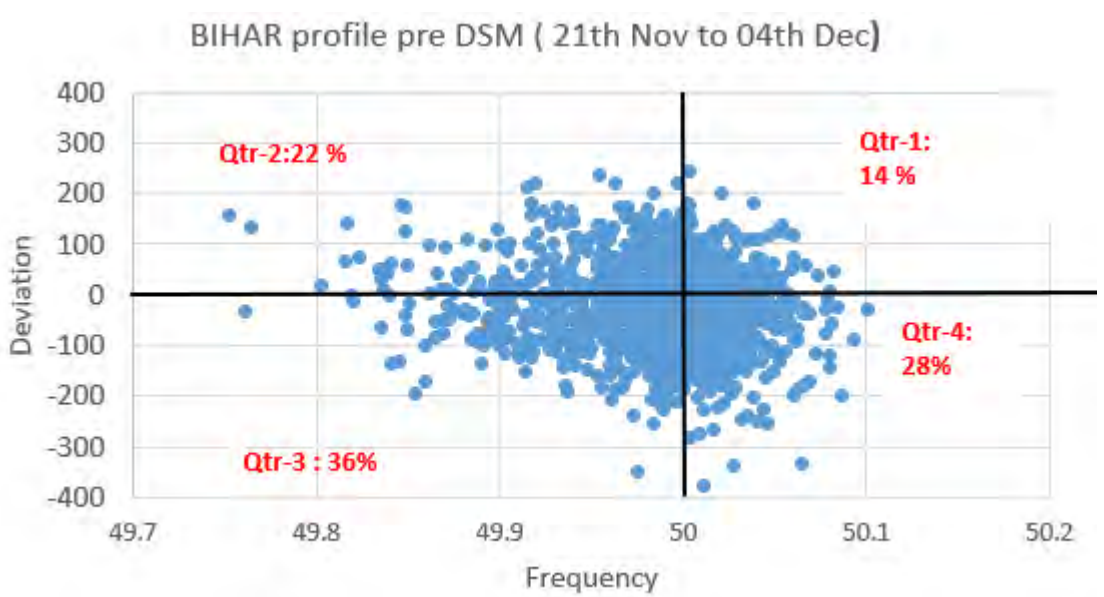


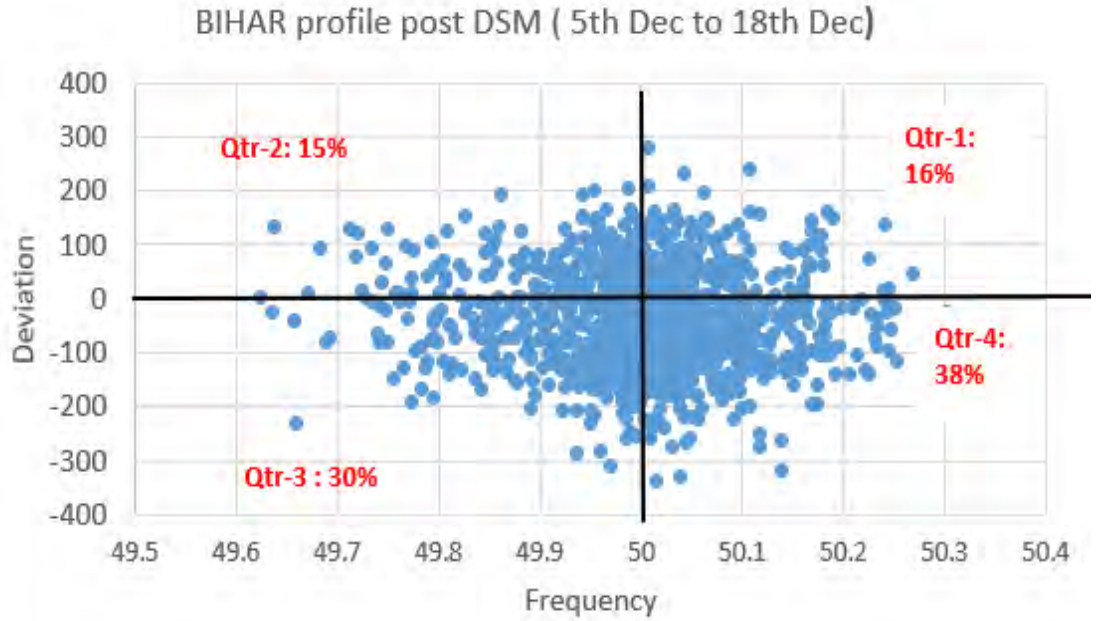
West Bengal Deviation profile



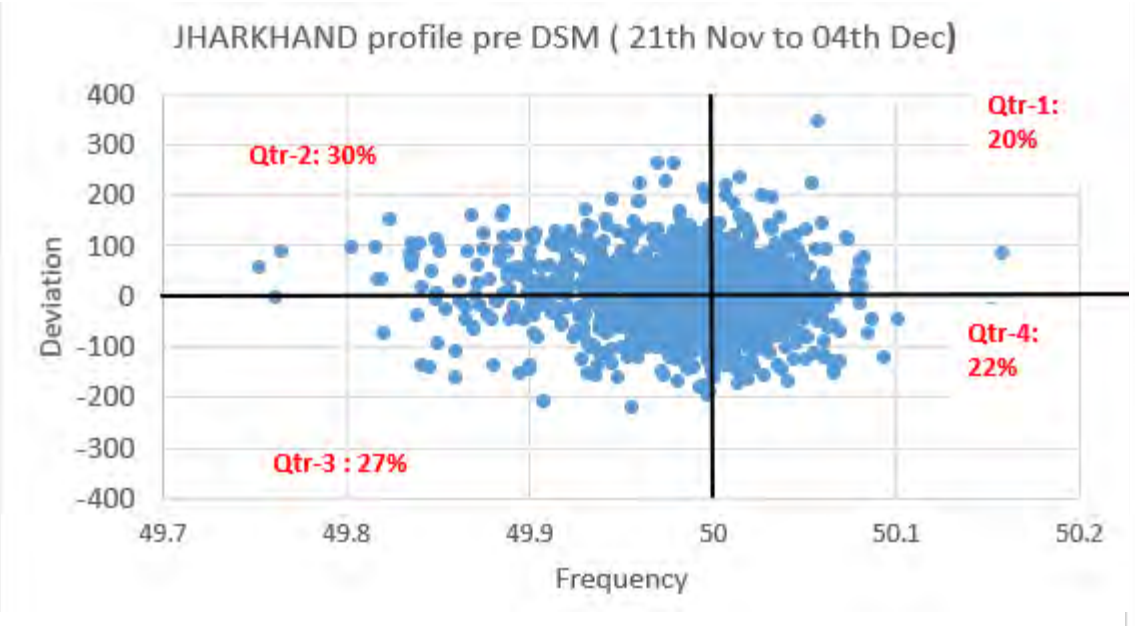


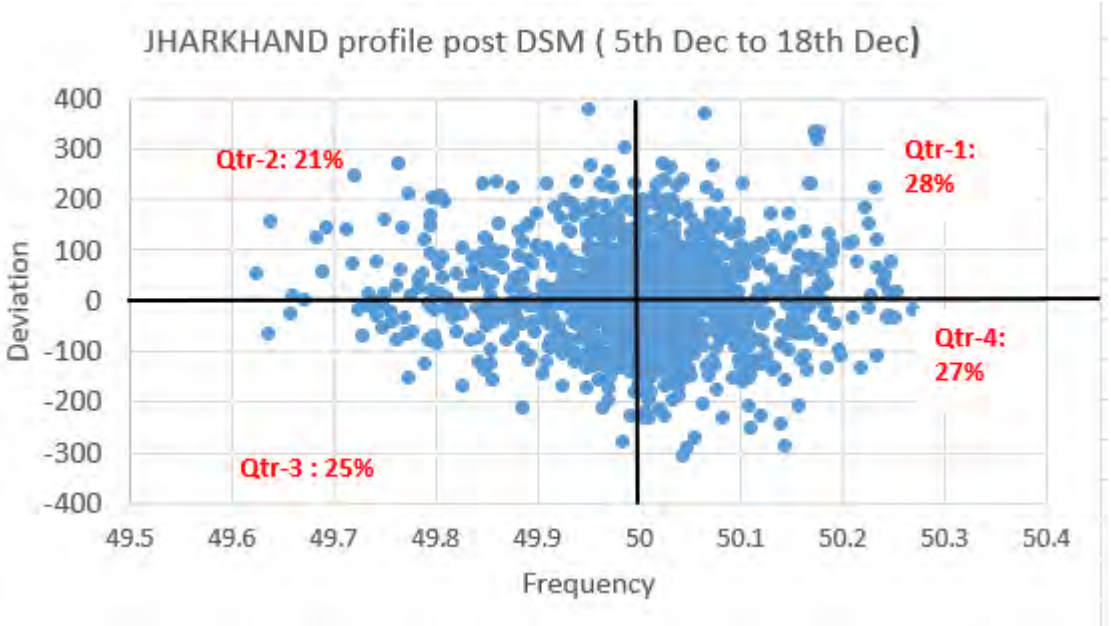
Bihar Deviation profile



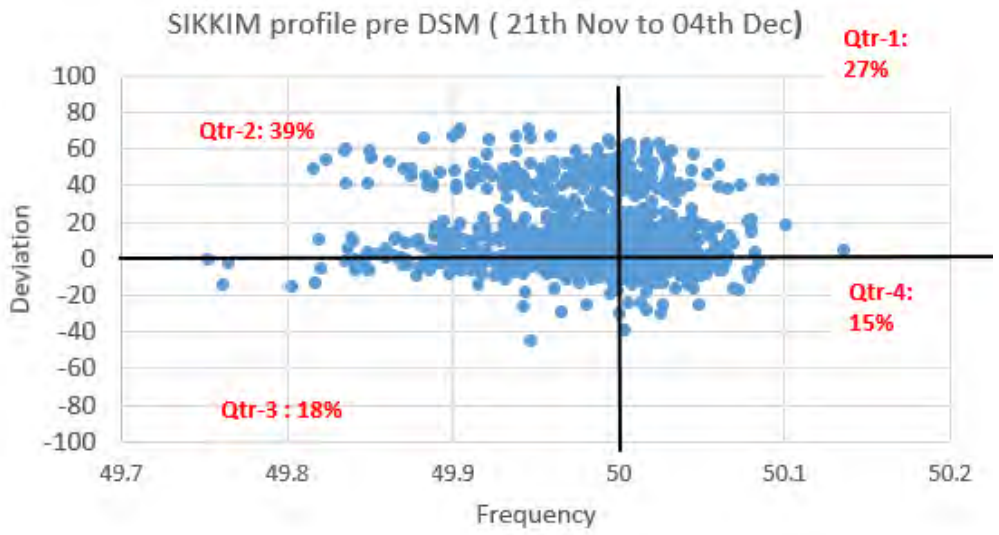


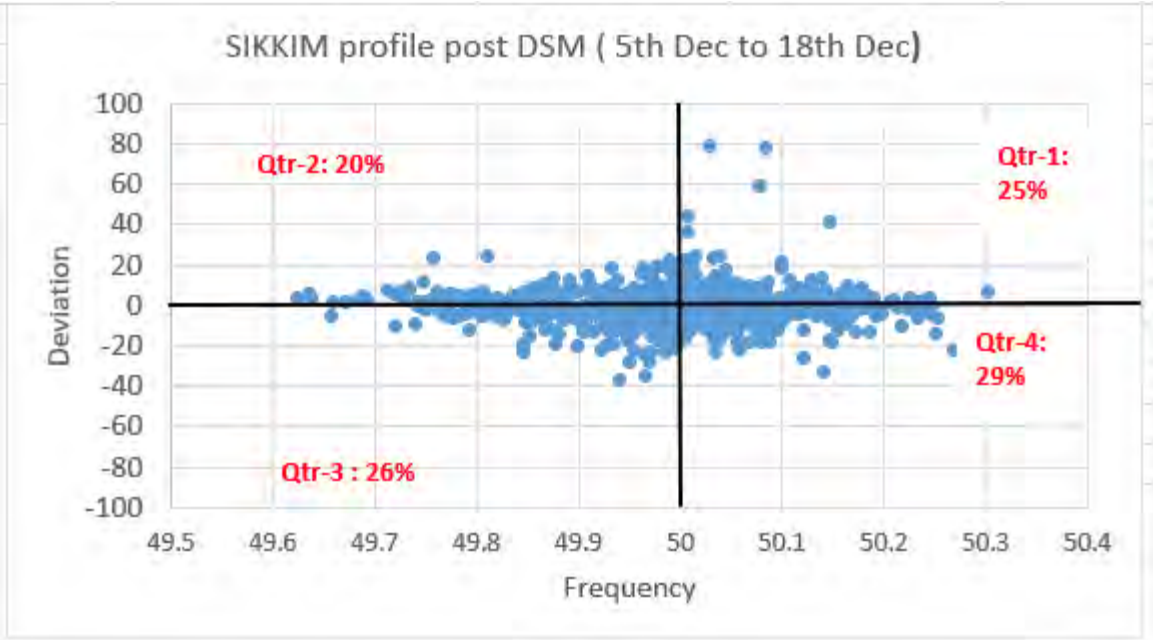
Jharkhand Deviation profile



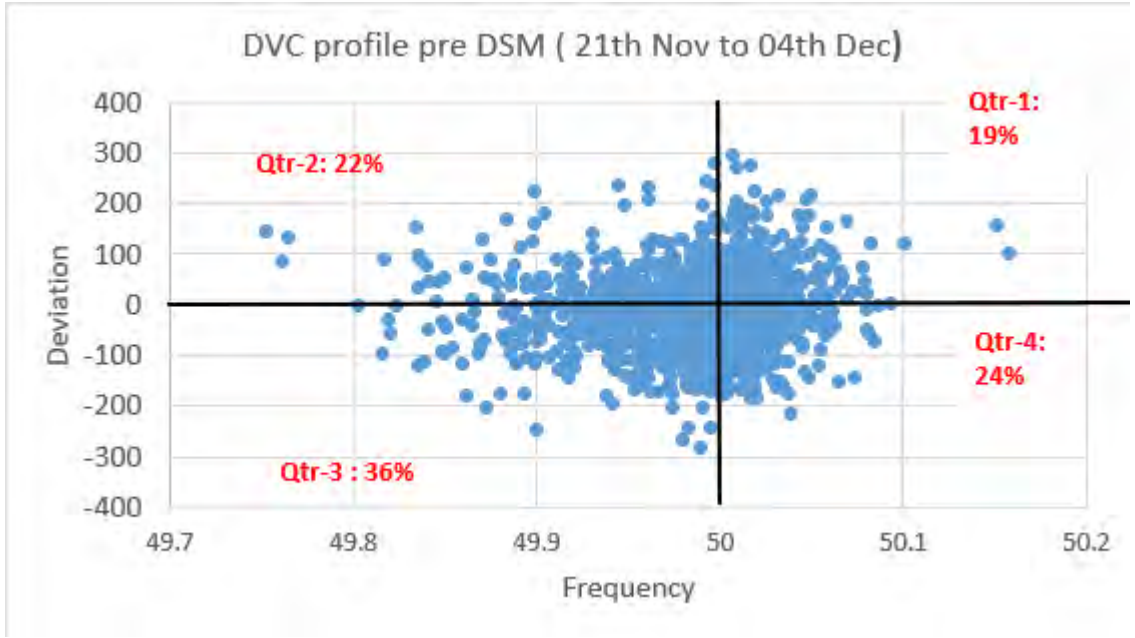


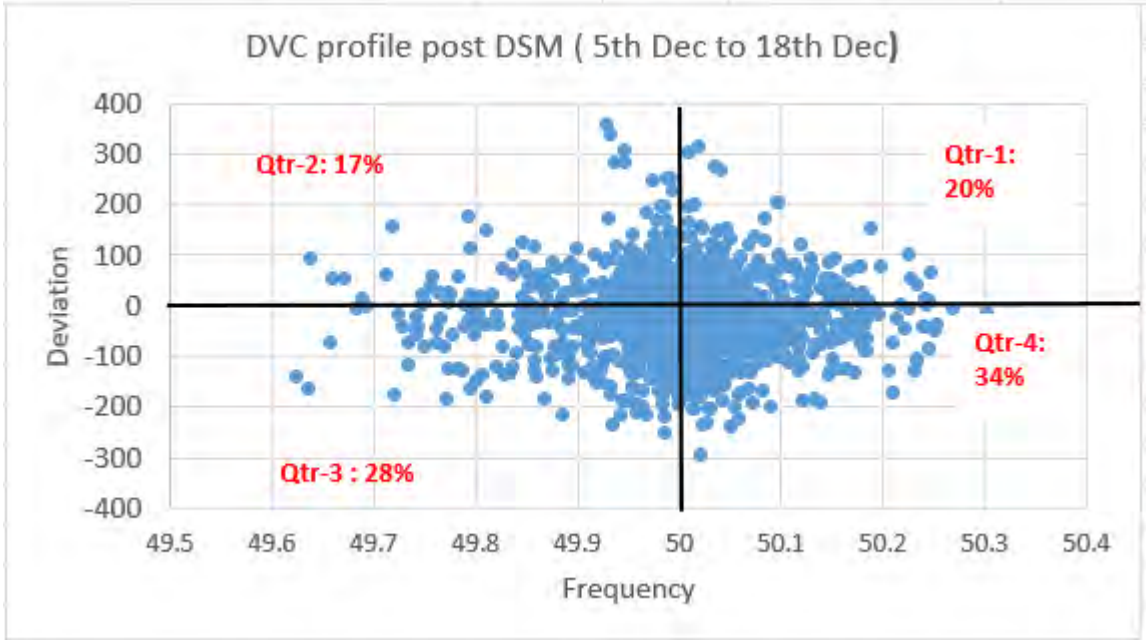
Sikkim Deviation profile



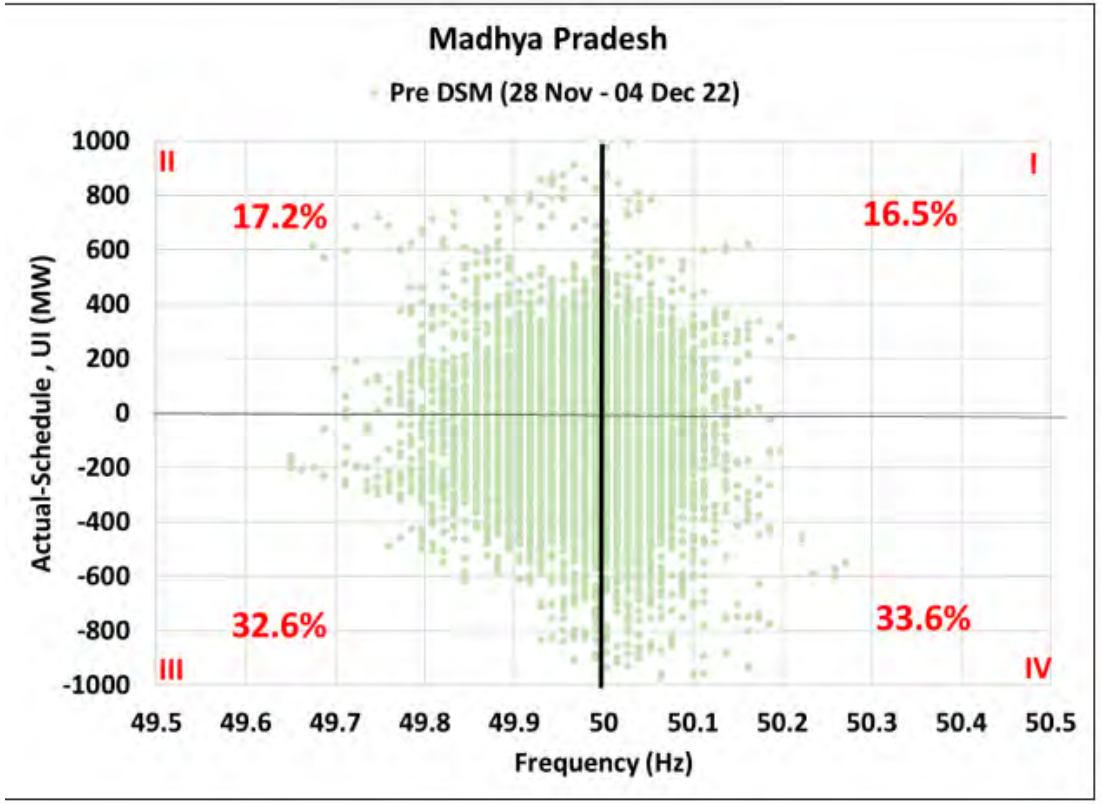


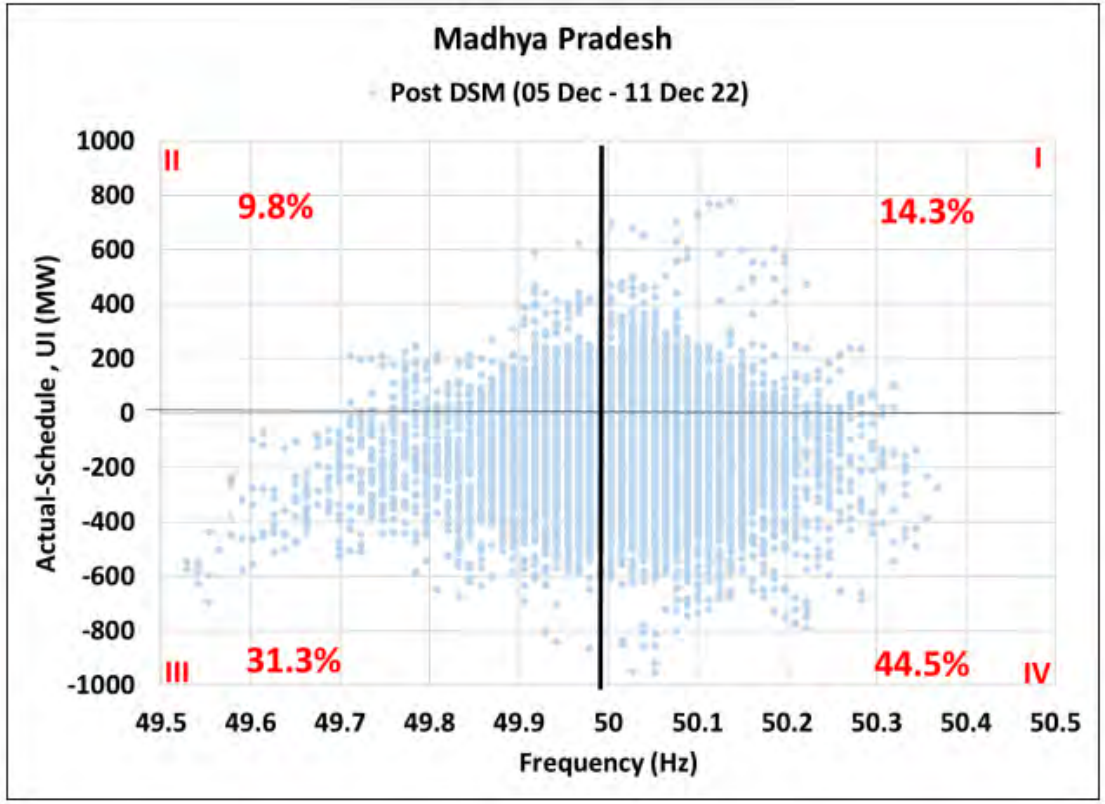
DVC Deviation profile



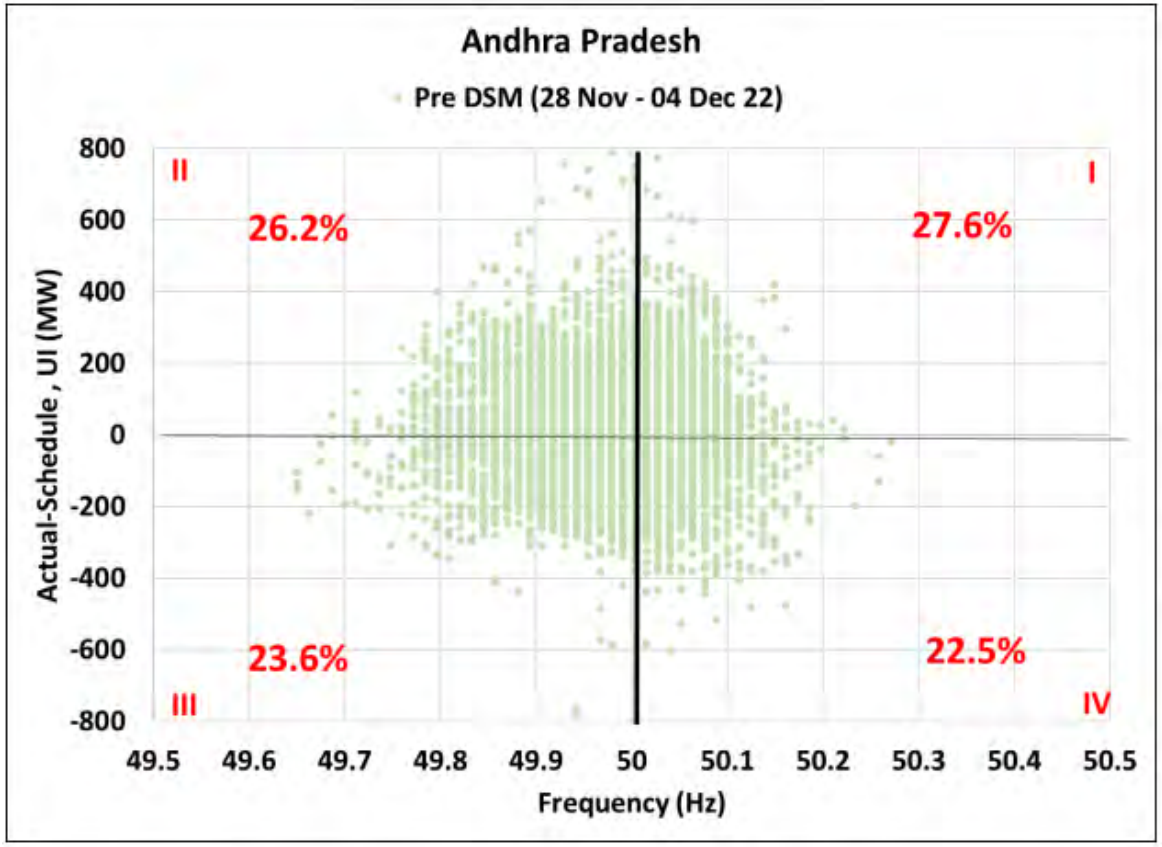


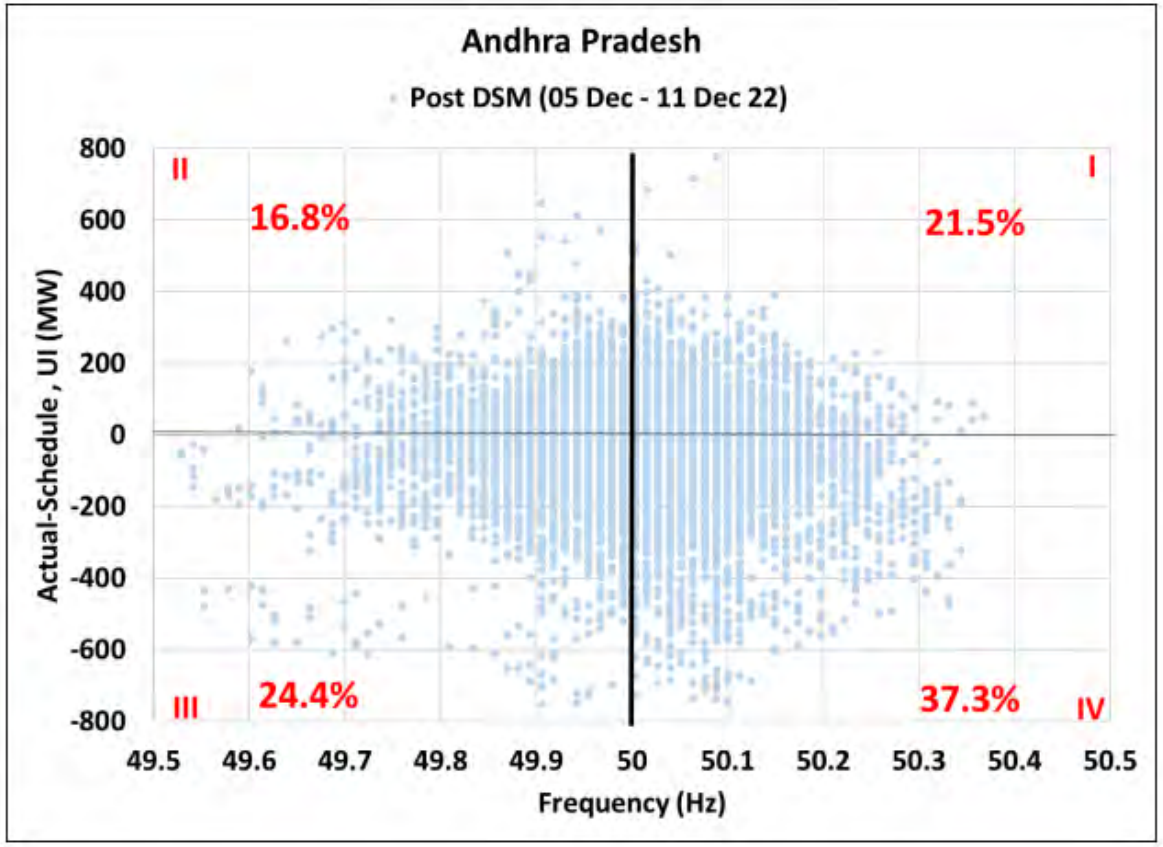
Deviation profile of Madhya Pradesh



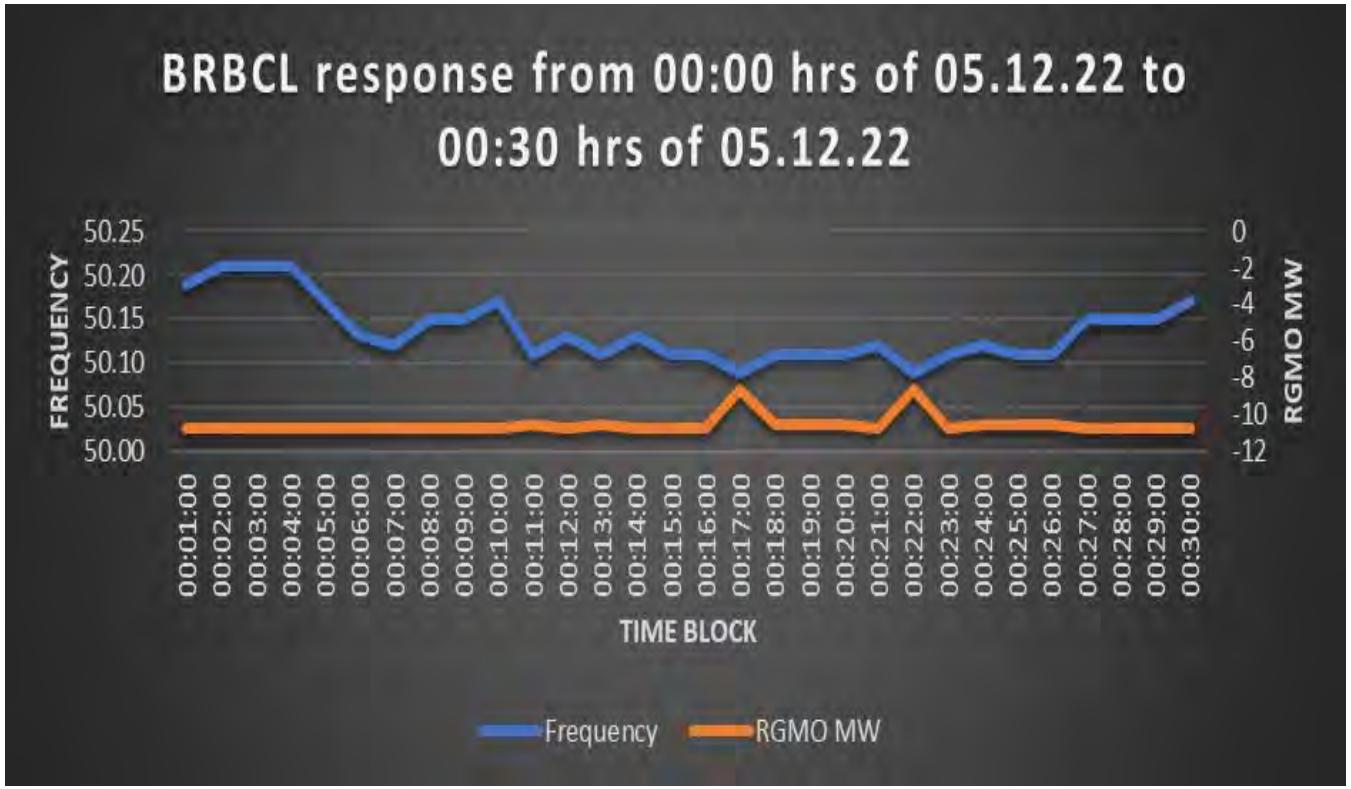


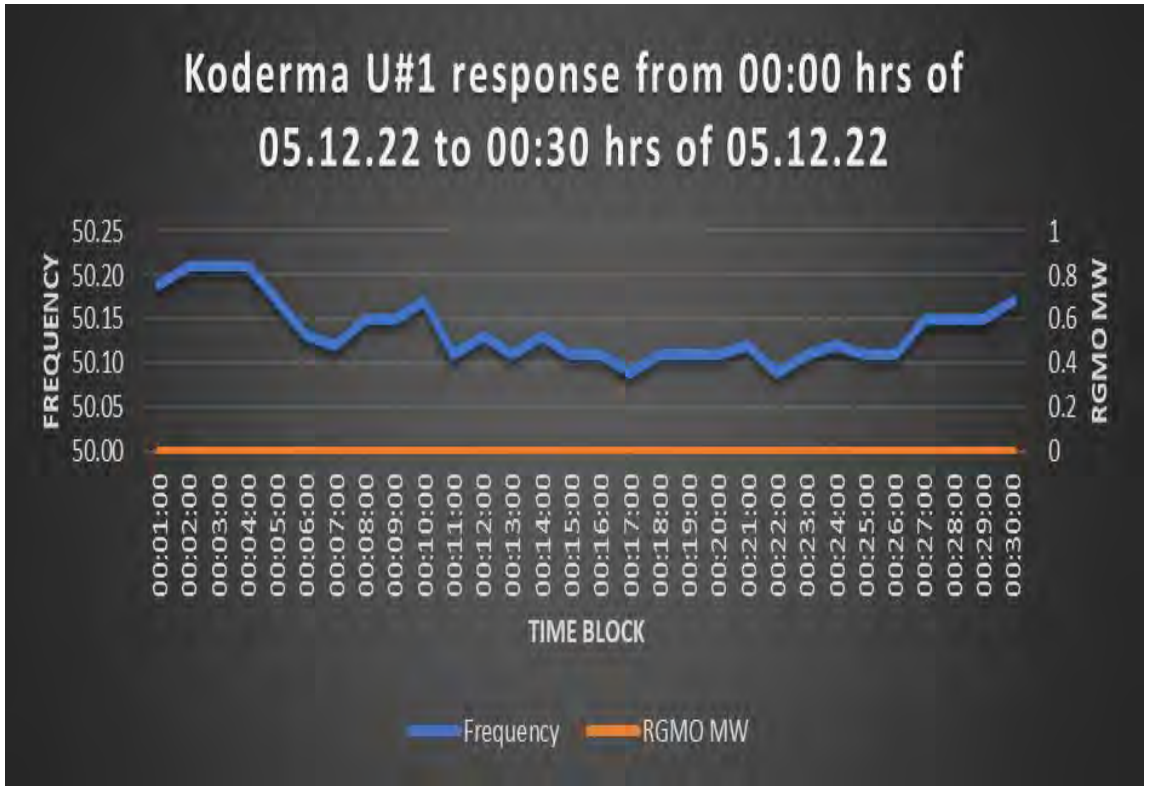
Deviation profile of Andhra Pradesh



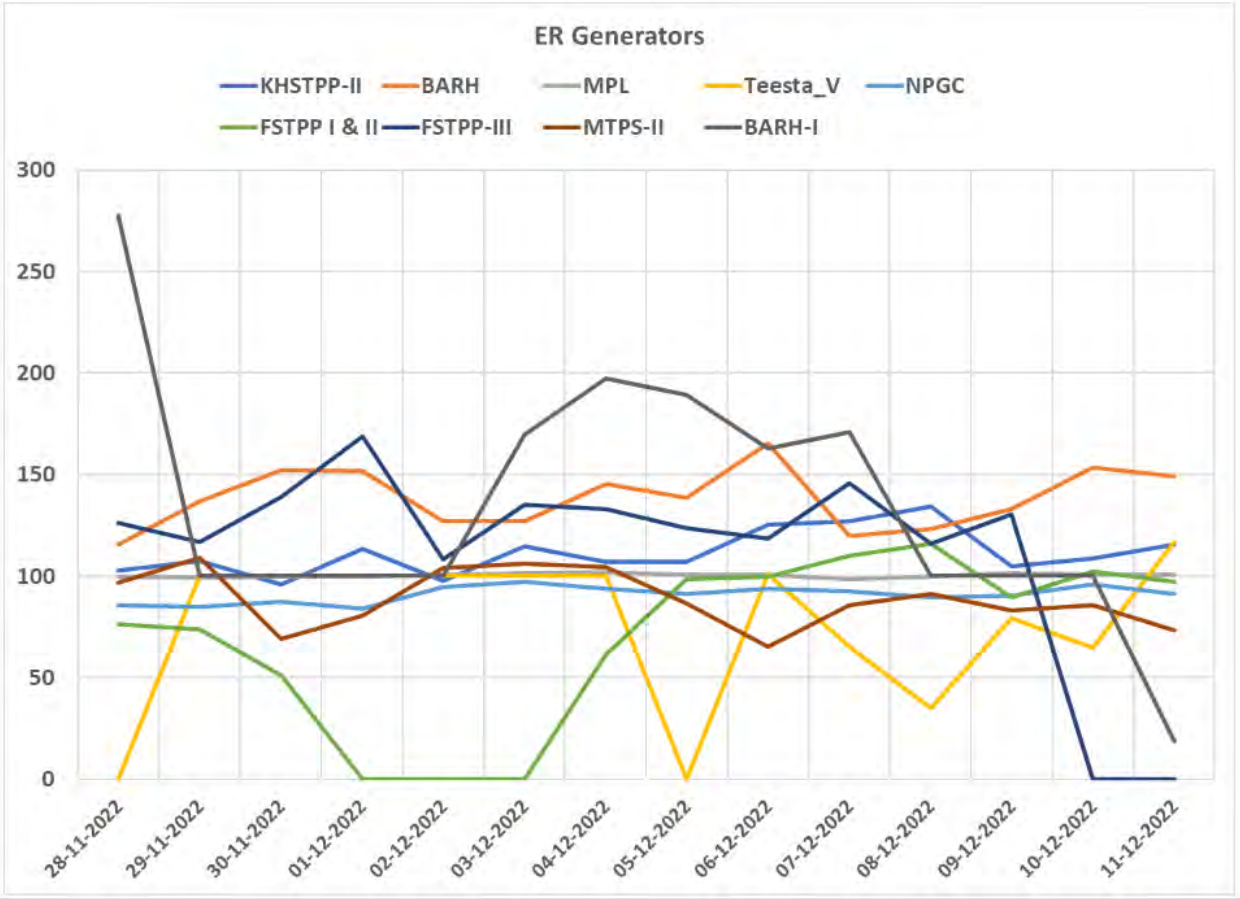


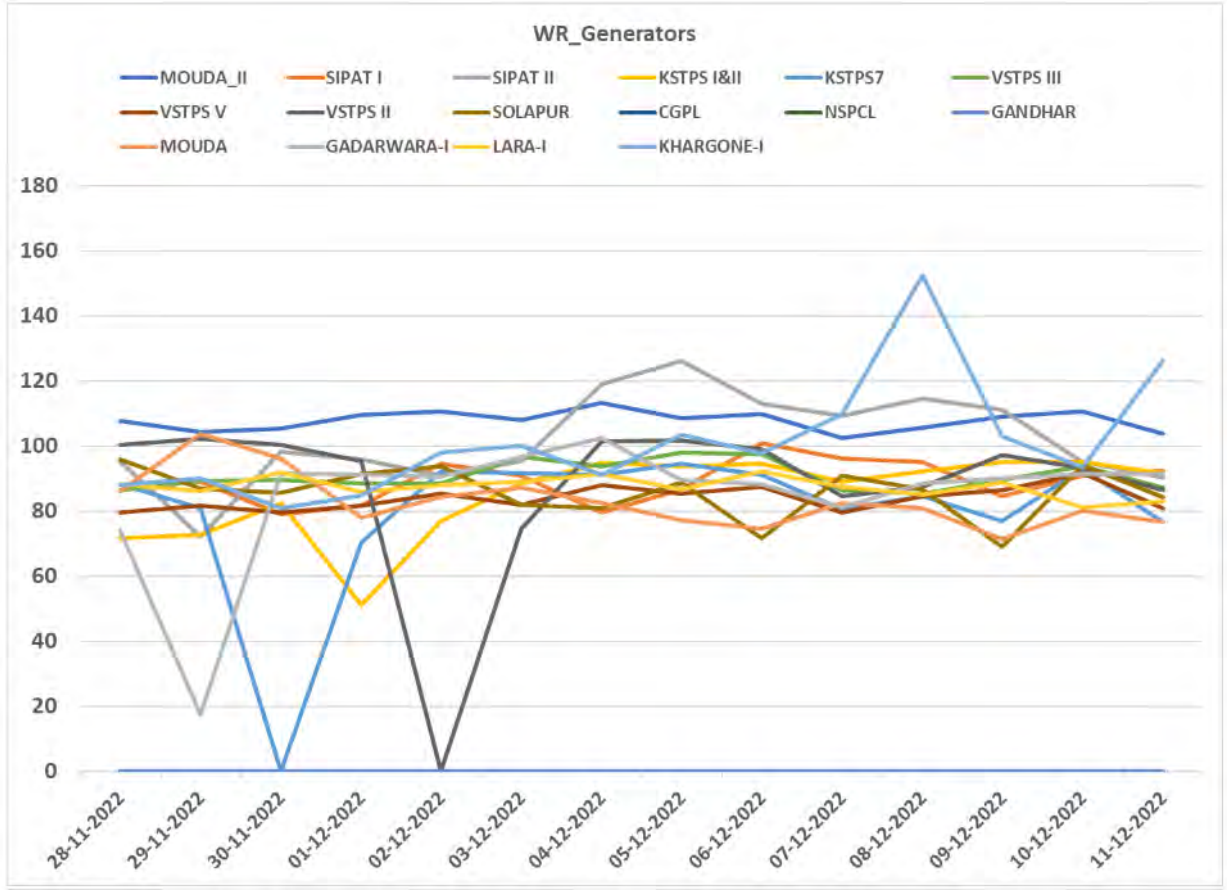
Typical Primary frequency response post DSM





Performance of generators under SRAS



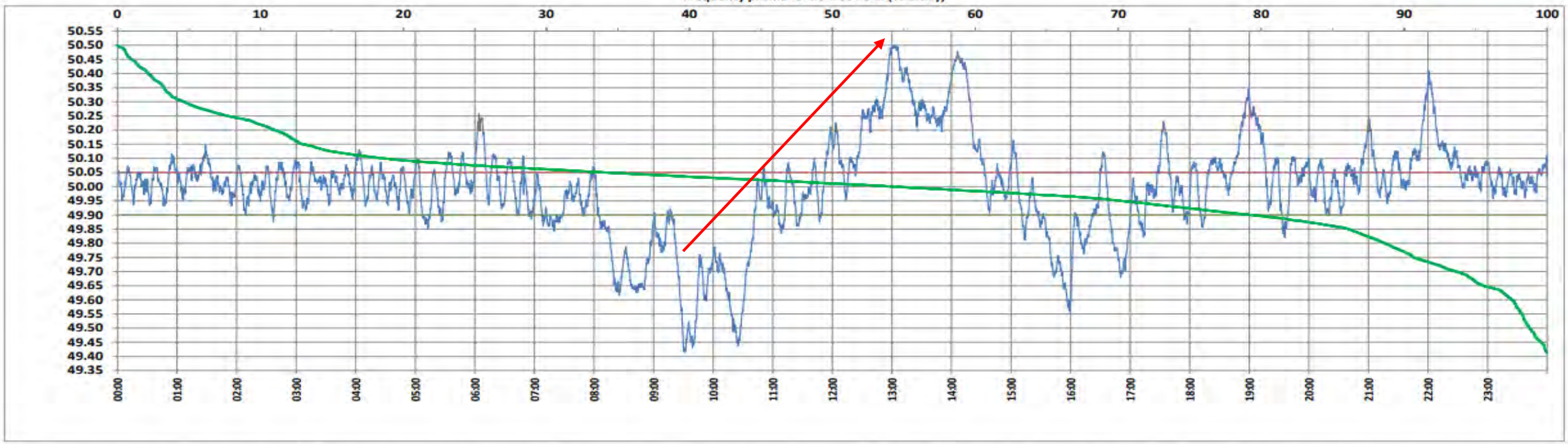


Large frequency variation on 20.12.22

GRID CONTROLLER OF INDIA LIMITED

NATIONAL LOAD DESPATCH CENTRE, NEW DELHI

Frequency profile for 20-Dec-2022 (Tuesday)



<49.7	<49.90	<49.97	49.7-49.8	49.8-49.9	49.9-50.0	50.0-50.1	50.1-50.2	49.90-50.05	49.7-50.2	49.97-50.03	50.05-50.1	>50	>50.03	>50.05	>50.2	<49.95	49.95-50.05	49.90-49.95
6.39	20.71	35.02	4.97	9.35	24.92	35.79	7.53	45.05	82.56	22.78	15.66	54.38	42.20	34.25	11.05	29.84	35.91	9.13

Average Frequency : 49.999	Frequency Variation Index : 0.3023	Standard Deviation : 0.1741	Mileage: 53.6	FDI: 55.0

Instantaneous Frequency		
Max	50.500	13:02:00
Min	49.414	9:31:30

15 minute Average Frequency		
Max	50.446	13:15:00
Min	49.483	9:45:00

No. of excursions	
above 50.03 Hz	112
below 49.97 Hz	87
above 50.00 Hz	109
below 50.00 Hz	108

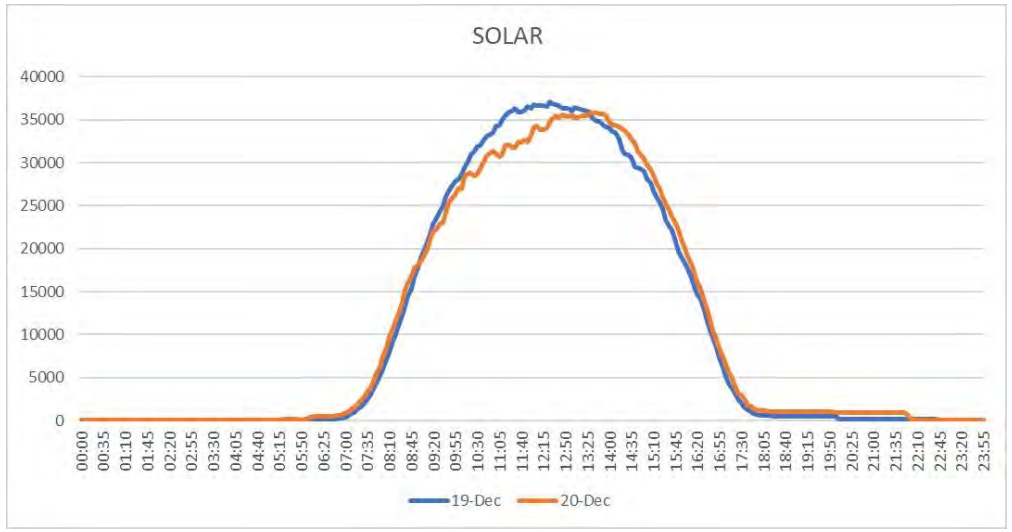
Average time freq per excursion remains	
below 49.97	0:05:48
above 50.03	0:05:26

No. of hours freq outside 49.9-50.05 Hz	13:11:20

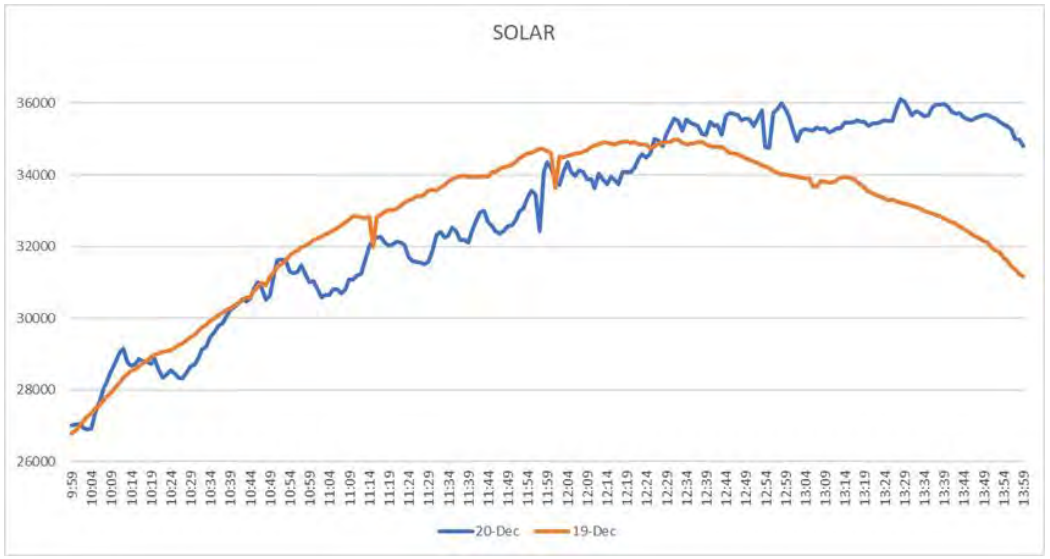
Source : BALIPARA 10 Sec. (8640 samples)

Solar generation pattern on 20.12.2022

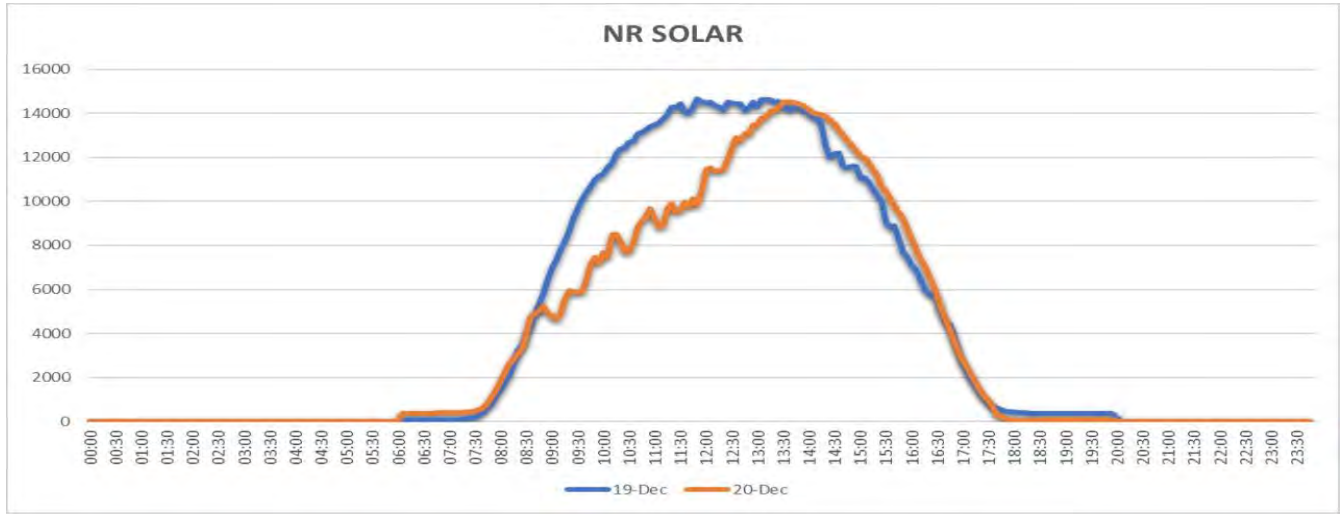
All India Solar



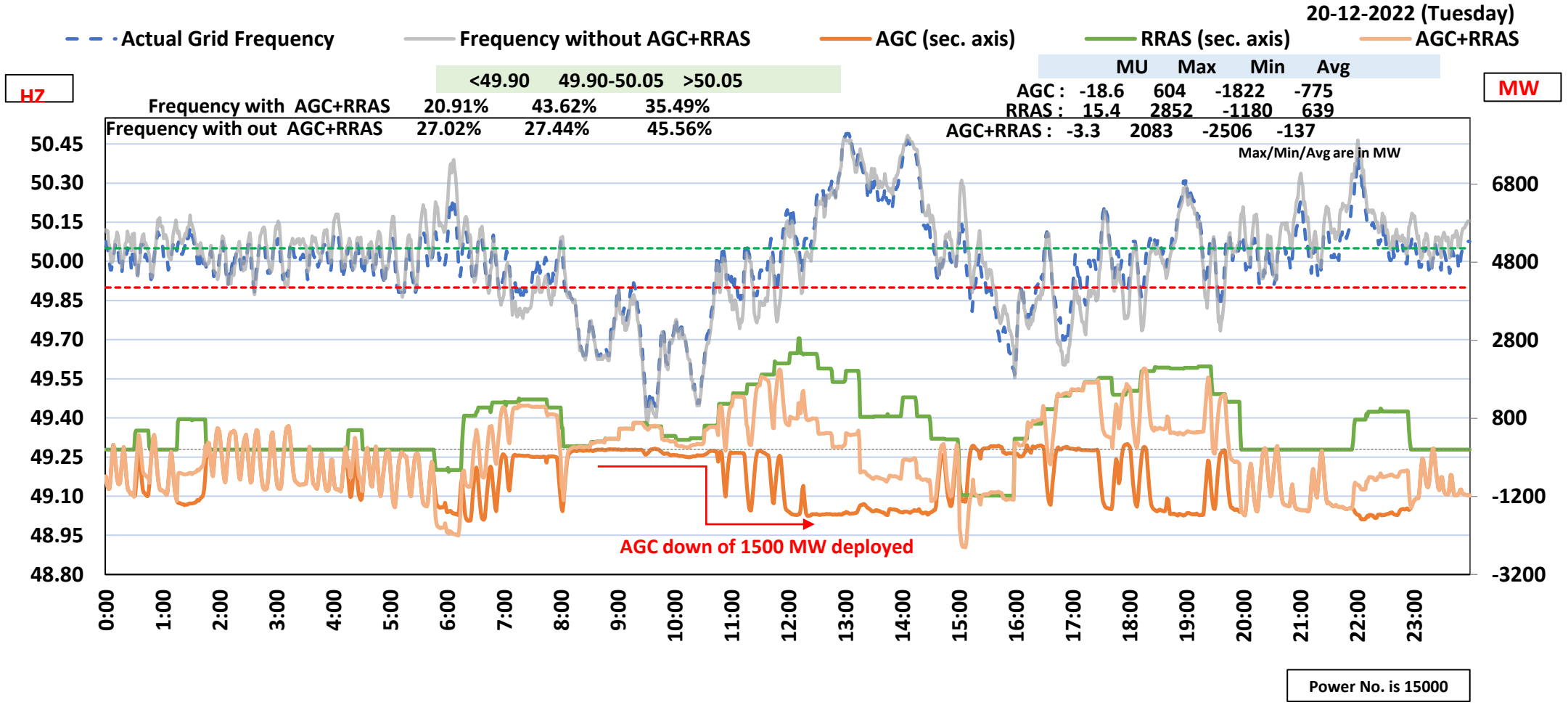
All India Solar



NR Solar



Insufficient Secondary Reserve



Way forward

- Presently 67 power plants with IC ~ 65 GW is wired to operate in SRAS. AGC response in real time in the tune of +1000 MW to -1500 MW. More reserves in SRAS is required for maintaining grid frequency
- Better response from the generators under Primary
- States to operate more close to X-axis and reduce deviation
- Concerns/ Feedback to utilities to be put up to commission

THANK YOU

Annexure B7.2

Generators with SRAS potential

Central Sector

Sl No.	Station	Total Install Capacity	Unit No	Fuel Type	Size	Possible response considering +-5% of capacity(MW)
1	Kahalgaon STPS Stage I	840	1	Coal	210	
			2	Coal	210	
			3	Coal	210	
			4	Coal	210	
2	Farakka Stage I	600	1	Coal	200	
			2	Coal	200	
			3	Coal	200	
3	BRBCL Nabinagar	1000	1	Coal	250	
			2	Coal	250	
			3	Coal	250	
			4	Coal	250	
4	Darlipali STPP	1600	1	Coal	800	
			2	Coal	800	
Total					**4040**	**202**

Jharkhand

Sl No.	Station	Total Install Capacity	Unit No	Source	Size	Possible response considering +-5% of
1	Tenughat	2x210	1	Coal	210	
			2	Coal	210	
2	Subarnarekha	2X65	1	Hydro	65	
			2	Hydro	65	
Total					**550**	**27.5**

Bihar

Sl No.	Station	Total Install Capacity	Unit No	Source	Size	Possible response considering +-5% of
1	Barauni	2x250	8	Coal	250	
			9	Coal	250	
Total					**500**	**25**

DVC

Sl No.	Station	Total Install Capacity	Unit No	Source	Size	Possible response considering +-5% of
1	Mejia	1340	1	Thermal	210	
			2	Thermal	210	
			3	Thermal	210	
			4	Thermal	210	
			5	Thermal	250	
			6	Thermal	250	
2	Mejia-B	1000	7	Thermal	500	
			8	Thermal	500	
3	CTPS B	500	7	Thermal	250	
			8	Thermal	250	
4	Koderma TPS	1000	1	Thermal	500	
			2	Thermal	500	
5	Bokaro"B"	210	3	Thermal	210	
6	Bokaro"A"	500	1	Thermal	500	
7	RAGHUNATHPUR	1200	1	Thermal	600	
			2	Thermal	600	
8	DSTPS	1000	1	Thermal	500	
			2	Thermal	500	
Total					**6750**	**337.5**

West Bengal						
Sl No.	**Station**	**Total Install Capacity**	***Unit No***	**Source**	**Size**	**Possible response considering +-5% of**
1	Kolaghat	840	3	Thermal	210	
			4	Thermal	210	
			5	Thermal	210	
			6	Thermal	210	
2	Sagardighi	1600	1	Thermal	300	
			2	Thermal	300	
			3	Thermal	500	
			4	Thermal	500	
3	Bakreshwar	1050	1	Thermal	210	
			2	Thermal	210	
			3	Thermal	210	
			4	Thermal	210	
			5	Thermal	210	
4	Santaldih	500	5	Thermal	250	
			6	Thermal	250	
5	Bandel	275	3	Thermal	60	
			5	Thermal	215	
6	TLDP III	132	1	Hydro	33	
			2	Hydro	33	
			3	Hydro	33	
			4	Hydro	33	
7	TLDP IV	160	1	Hydro	40	
			2	Hydro	40	
			3	Hydro	40	
			4	Hydro	40	
8	DPL	550	7	Thermal	300	
			8	Thermal	250	
9	HALDIA	600	1	Thermal	300	
			2	Thermal	300	
10	Hiranmayee Enegry Ltd (Previously IPC(H)L)	300	1	Thermal	150	
			2	Thermal	150	
11	Budge-Budge	750	1	Thermal	250	
			2	Thermal	250	
			3	Thermal	250	
Total					**6757**	**337.9**

Odisha						
Sl No.	**Station**	**Total Install Capacity**	***Unit No***	**Source**	**Size**	**Possible response considering +-5% of**
1	IBTPS Stage I	420	1	Thermal	210	
			2	Thermal	210	
2	IBTPS Stage II	1320	1	Thermal	660	
			2	Thermal	660	
3	Balimela	510	1	Hydro	60	
			2	Hydro	60	
			3	Hydro	60	
			4	Hydro	60	
			5	Hydro	60	
			6	Hydro	60	
			7	Hydro	75	
			8	Hydro	75	
4	U-Kolab	320	1	Hydro	80	
			2	Hydro	80	
			3	Hydro	80	
			4	Hydro	80	
5	U-Indravati	600	1	Hydro	150	
			2	Hydro	150	
			3	Hydro	150	
			4	Hydro	150	
6	Rengali	200	1	Hydro	50	
			2	Hydro	50	
			3	Hydro	50	
			4	Hydro	50	
			5	Hydro	50	
7	Burla	281.5	1	Hydro	49.5	
			2	Hydro	49.5	
			3	Hydro	32	
			4	Hydro	32	
			5	Hydro	37.5	
			6	Hydro	37.5	
			7	Hydro	43.5	
Total					**3701.5**	**185.1**

IPPs						
Sl No.	**Station**	**Total Install Capacity**	***Unit No***	**Source**	**Size**	**Possible response considering +-5% of**
1	ADHUNIK	540	1	Thermal	270	
			2	Thermal	270	
2	GMR	1050	1	Thermal	350	
			2	Thermal	350	
			3*	Thermal	350	
3	JITPL	1200	1	Thermal	600	
			2	Thermal	600	
5	TEESTA -III	1200	1	Hydro	200	
			2	Hydro	200	
			3	Hydro	200	
			4	Hydro	200	
			5	Hydro	200	
			6	Hydro	200	
6	DIKCHU	96	1	Hydro	48	
			2	Hydro	48	
8	Chuzachen	110	1	Hydro	55	
			2	Hydro	55	
9	Rongnichu	113	1	Hydro	56.5	
			2	Hydro	56.5	
Total					**4309**	**215.45**

* Unit-3 of GMR is Dedicated to Odisha

Grand Total					26608	1330

Annexure C7

Power Plant	Unit No	PSS tuned (Yes/No)	PSS in Service (Yes/No)	Last PSS Tuning Date	Whether Done in Last 3 Years	Whether Next to be planned	Planned Next PSS Tuning
West Bengal							
Kolaghat-WBPDCL	3	No	Yes	Long Back	No	Yes	To be done within Jan./Feb. 2022 after DAVR replacement.
PPSP	1	No	Yes	2009	No	Yes	Dec-21
PPSP	2	No	Yes	2009	No	Yes	Dec-21
PPSP	3	No	Yes	2009	No	Yes	Dec-21
PPSP	4	No	Yes	2009	No	Yes	Dec-21
DVC							
Raghunathpur-DVC	1	No	No		No Detail	Yes	Dec-22
Raghunathpur-DVC	2	No	No		No Detail	Yes	Dec-22
Waria	4	Yes	Yes	2008	No	Yes	Unit Is out of Service
ISGS							
Kahalgaon NTPC	1	Yes	Yes	2017	Yes	Yes	Apr-21
Kahalgaon NTPC	3	Yes	Yes	2016	Yes	Yes	Jul-21
Kahalgaon NTPC	4	Yes	Yes	2015	No	Yes	Mar-21
Kahalgaon NTPC	6	Yes	Yes	2009	No	Yes	Mar-21
Barh NTPC	1		Yes				
Barh NTPC	4		Yes	2015		Yes	In Next AOH
BRBCL	2	Yes	Yes	2019	Yes	Yes	Jun-21
KBUNL	1	Yes	Yes	2014	No	Yes	2021-22
KBUNL	2	Yes	Yes	2014	No	Yes	2021-22
IPP							
Maithon Power Limited	2	Yes	Yes	2020	Yes	Yes	Last report not satisfactory
JITPL	1	Yes	Yes	2016	Yes	Yes	Jul-21
JITPL	2	Yes	Yes	2016	Yes	Yes	Jul-21
Orissa							
IB TPS	1	Yes	Yes	2011	No	Yes	Mar'2021
IB TPS	2	Yes	Yes	2012	No	Yes	Mar'2021
Upper Indravati	1	Yes	No	2015	No	Yes	To be updated by OHPC
Upper Indravati	2	Yes	No	2015	No	Yes	To be updated by OHPC
Upper Indravati	3	Yes	No	2000	No	Yes	To be updated by OHPC
Upper Indravati	4	Yes	No	2001	No	Yes	To be updated by OHPC
Balimela	1 (60 MW)			No detail		Yes	To be updated by OHPC
Balimela	2 (60 MW)			No detail		Yes	To be updated by OHPC
Balimela	3 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	4 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	5 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	6 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	7 (75 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	8 (75 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Upper Kolab	1	Yes	Yes	2007	No	Yes	March'2023
Upper Kolab	2	Yes	Yes	2007	No	Yes	March'2023
Upper Kolab	3	Yes	Yes	2007	No	Yes	March'2023
Upper Kolab	4	Yes	Yes	2007	No	Yes	March'2023
Sterlite	4 X 600			No detail		Yes	To be updated by SLDC
Jharkhand							
Tenughat	1	Yes	Yes	2017	Yes	Yes	Dec-21
Tenughat	2	Yes	Yes	2017	Yes	Yes	Dec-21
Bhutan							
Tala	1	No	Yes			Yes	To be updated by BPC
Tala	2	No	Yes			Yes	To be updated by BPC
Tala	3	No	Yes			Yes	To be updated by BPC
Tala	4	No	Yes			Yes	To be updated by BPC
Tala	5	No	Yes			Yes	To be updated by BPC
Tala	6	No	Yes			Yes	To be updated by BPC
Chukha	1	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	2	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	3	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	4	No	Yes	2005	No	Yes	To be updated by BPC
Mangdechu	1	No	Yes			Yes	Sep-21
Mangdechu	2	No	Yes			Yes	Sep-21

Annexure D.1

Anticipated Peak Demand (in MW) of ER & its constituents for January 2023

1	BIHAR	Demand (MW)	Energy Requirement (MU)
	NET MAX DEMAND	5250	2930
	NET POWER AVAILABILITY- Own Sources	607	251
	Central Sector+Bi-Lateral	6506	3277
	SURPLUS(+)/DEFICIT(-)	1863	598
2	**JHARKHAND**		
	NET MAXIMUM DEMAND	1830	1000
	NET POWER AVAILABILITY- Own Source	462	185
	Central Sector+Bi-Lateral+IPP	1012	621
	SURPLUS(+)/DEFICIT(-)	-356	-194
3	**DVC**		
	NET MAXIMUM DEMAND	3185	2090
	NET POWER AVAILABILITY- Own Source	4832	3036
	Central Sector+MPL	284	170
	Bi- lateral export by DVC	1860	1384
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	71	-268
4	**ODISHA**		
	NET MAXIMUM DEMAND (OWN)	4000	2418
	NET MAXIMUM DEMAND (In Case of CPP Drawal)	5100	3150
	NET POWER AVAILABILITY- Own Source	3190	1994
	Central Sector	1792	1231
	SURPLUS(+)/DEFICIT(-) (OWN)	982	807
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal)	-118	75
5	**WEST BENGAL**		
5.1	**WBSEDCL**		
	NET MAXIMUM DEMAND	5555	3060
	NET MAXIMUM DEMAND (Incl. Sikkim)	5560	3064
	NET POWER AVAILABILITY- Own Source (Incl. DPL)	4619	2551
	Central Sector+Bi-lateral+IPP&CPP+TLDP	1893	1019
	EXPORT (To SIKKIM)	5	4
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	952	506
5.2	**CESC**		
	NET MAXIMUM DEMAND	1350	670
	NET POWER AVAILABILITY- Own Source	700	476
	IMPORT FROM HEL	270	167
	TOTAL AVAILABILITY OF CESC	970	643
	DEFICIT(-) for Import	-380	-27
	WEST BENGAL (WBSEDCL+CESC+IPCL)		
	(excluding DVC's supply to WBSEDCL's command area)		
	NET MAXIMUM DEMAND	6905	3730
	NET POWER AVAILABILITY- Own Source	5319	3027
	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	2163	1186
	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXPORT	577	483
	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXPORT	572	479
6	**SIKKIM**		
	NET MAXIMUM DEMAND	132	65
	NET POWER AVAILABILITY- Own Source	2	1
	Central Sector	173	88
	SURPLUS(+)/DEFICIT(-)	44	24
	EASTERN REGION		
	NET MAXIMUM DEMAND	20884	12232
	NET MAXIMUM DEMAND (In Case of CPP Drawal of Odisha)	21963	12964
	BILATERAL EXPORT BY DVC (Incl. Bangladesh)	1860	1384
	EXPORT BY WBSEDCL TO SIKKIM	5	4
	EXPORT TO B'DESH & NEPAL OTHER THAN DVC	642	478
	NET TOTAL POWER AVAILABILITY OF ER	24482	13683
	(INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)		
	SURPLUS(+)/DEFICIT(-)	3593	1447
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal of Odisha)	2514	715

ANNEXURE D2

Approved Maintenance Schedule of Thermal Generating Units of ER during 2022-23 in the month of January'2023												
System	Station	Unit No.	Capacity(MW)	Period (as per LGBR 2021-22)		No. of Days	Approved Period		No. of Days	Reason	Whether as per LGBR or not	Remarks
				From	To		From	To				
WBPDCL	Kolaghat TPS	3	210	07.01.2023	16.01.2023	10	-	-	-	PG Test	NO	NOT Availing
	Kolaghat TPS	5	210	17.01.2023	05.02.2023	20	17.01.2023	20.02.2023	30	AOH/BOH	YES	
OPGC	IB TPS	1	210	01.01.2023	25.01.2023	25	-	-	-	Annual Maintenance	NO	Postponed to 11th March 2023.
NTPC	Farakka STPS	3	200	01.01.2023	04.02.2023	35	08.01.2023	07.02.2023	30	Boiler+FGD+MOP&TG Bearing	NO	Unit-2 would be taken in S/D in place of unit-3
	Kahalgaon STPS	1	210	05.01.2023	03.02.2023	30	15.02.2023	30.03.2023	45	Boiler + Generator Maintenance	NO	Unit-3 would be taken in S/D in place of unit-1
GMR	GMR	2	350	01.01.2023	14.02.2023	45				Annual Turbine Overhauling		
MPL	MPL	1	525	-	-		15.01.2023	28.02.2023	45	AOH	NO	
DVC	MTPS	8	500	20.12.2022	24.01.2023	25	05.01.2023	15.02.2023	40	COH	NO	
BRBCL	BRBCL	2	250	25.08.2022	03.10.2022	38	07.02.2023	15.03.2023	37	Boiler Modification	NO	