MINUTES
OF
181st OCC MEETING

Date: 22.07.2021

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700033

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 181st OCC MEETING HELD ON 22.07.2021 (THRUSDAY) AT 10:30 HRS

Member Secretary, ERPC chaired the 181st OCC Meeting. Welcoming all the participants to the meeting, he outlined the performance of ER Grid during June-2021 in brief and specially mentioned the following points:

- *During the month of June-21, growth in energy consumption of ER was 6.38% compared to the same month of previous year, however was lower by 3% compared to that of 2019.*
- *During the year 2021-22, the Peak Demand met of ER was 23,800 MW in the month of June- 21 which is 9 % and 4 % more than that of May-20 and May-19 respectively.*
- *Eastern Region registered average PLF of 70.4% in June-21. Moreover, during the month of June-21, 4 nos. of thermal plants have achieved more than 90%.*
- *During June-2021, 74.5 % of time, grid frequency was within IEGC Band (49.90Hz-50.05Hz).*
- *As per the LGBR 2021-22, a thermal capacity of 2,835 MW is scheduled for planned shutdown in August, 2021.*
- *As on 19.07.2021, total coal stock in Eastern Region was 4.46 Million Tonnes (i.e. for 11 Days). However, Kahalgaon STPS, APNRL, GMR KEL, Bandel, DPL and Santhaldih TPS having coal stock for less than 5 days.*

He further mentioned that all India Power Demand surged beyond 200 GW mark at 12:01 Hrs on 7th July, 2021. This has come in the backdrop of India's Peak Demand falling during second wave of prevailing COVID pandemic; that has revived now.

PART – A

ITEM NO. A.1: Confirmation of Minutes of 180th OCC Meeting held on 22nd June 2021 through MS Teams online platform.

The minutes of 180th Operation Coordination sub-Committee meeting held on 22.06.2021 was circulated vide letter dated 06.07.2021.

Members may confirm the minutes of 180th OCC meeting.

Deliberation in the meeting:

Members confirmed the minutes of 180th OCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Ensuring reliable power supply at Deoghar and Dumka area during Sharwani Mela-2021

World famous Sharwani mela is going to be celebrated from 25-07-21 to 22-08-21 at Deoghar and Basukinath, Jharkhand. Millions of pilgrims are going to visit the holy site during the same period. A letter dated 02.07.21 from SLDC Jharkhand has been received for power assistance.

In view of the same, uninterrupted and unrestricted power supply to Deoghar and Dumka is extremely important for the above mentioned period. Therefore maintaining healthiness of all the 220 and 132 kV transmission line must be ensure by all the respective transmission asset owners.

In addition to that Jharkhand has requested for following power assistance from DVC and Bihar:

1. 30-35 MW assistance through 132 kV Deoghar-Sultangunj tie with BSPTCL
2. 55-60 MW assistance through 132 kV Maithon-Jamtara tie with DVC
3. 30-35 MW assistance through 132 kV Kahalgaon(BSPTCL)-Lalmatia tie with BSPTCL

DVC and Bihar is requested plan accordingly and share their consent to Jharkhand SLDC.

Members may discuss.

Deliberation in the meeting:

Jharkhand representative submitted that keeping in view of the ongoing Covid-19 Pandemic situation and also considering the possibility of third wave of the Pandemic, Government of Jharkhand has cancelled the Sharwani Mela Celebration for this year. He further added that as such no special power assistance is needed for this.

ERPC raised concerns about the frequent tripping of the 132kV Banka-Sultanganj D/C line and 132 kV Sultanganj-Deoghar Line. ERLDC representative intimated that these two lines tripped multiple times in the last two months and the fault observed was of transient in nature which generally occurs due to vegetation problem.

OCC advised Bihar to do line patrolling thoroughly and do the tree pruning work wherever required. OCC further advised Bihar and Jharkhand to check the protection settings at their end so that such types of tripping can be avoided in future.

ERLDC representative further informed that whenever the Ckt-I of 132kV Banka-Sultanganj goes out, the Ckt-II gets overloaded.

OCC advised Bihar to keep a check on their load and submit a plan regarding the load relief of 132kV Banka-Sultanganj D/C Line. Bihar representative agreed to this and ensured that the necessary plan of action would be submitted soon.

On query regarding 132kV Sultanganj-Deoghar Line, Jharkhand representative submitted that as per their jurisdiction i.e. from tower loc nos. 1 to 32, line patrolling and tree pruning work had been done.

Bihar representative submitted that for 132kV Sultanganj-Deoghar line tree pruning had been completed on 18th and 19th July '21 and for 132kV Banka-Sultanganj D/C line shutdown was proposed on 22nd and 23rd July '21 but the same was postponed due to visit of high dignitaries to Banka. He further added that shutdown of the line would be taken in the last week of July'21 for completion of the said work.

In conclusion, OCC opined that though Sharwani Mela would not be celebrated due to the pandemic, the reliable and un-interrupted power supply to the area should be ensured and hence, associated transmission lines should be kept in healthy conditions. Further, OCC advised Bihar to complete the tree cutting activity within a week.

ITEM NO. B.2: Reliable Power Supply to Lalmatia/Godda/Dumka areas of JUSNL

The 220 kV Farakka-Lalmatia S/C was out of service since April 2021due 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 179th CC meeting, ERLDC representative stressed over the fact that commissioning of 220kVTenughat-Govindpur line would increase the system reliability and the said line may be commissioned at the earliest.

In 103rd PCC meeting, during discussion of tripping of 220 kV Maithon-Dumka line-2 on 15/05/21, it was informed that the auto-recloser in the said line is not in operation due to some issues in PLCC. It was also come to notice that there was no formal agreement between JUSNL & Powergrid for O & M of the bay equipment at Maithon end. As a result, bay equipment at Maithon end for 220 kV Maithon-Dumka D/C lines are not being maintained properly.

In view of above, the following issues need to be discussed:

1. Restoration of 220 kV Farakka-Lalmatia S/C line
2. Commissioning of 220 kV Tenughat-Govindpur lines
3. Status of O & M agreement with Powergrid for bay equipments at Maithon end and resolution of autorecloser issues in the 220 kV Maithon-Dumka Lines.

In the 180th OCC meeting:

1. Restoration of 220kV Farraka-Lalmatia S/C line

   JUSNL representative submitted that for the restoration of the said line field survey has already been carried out. He informed that cost estimation for the same has been prepared and submitted to HQ for approval so that it can be forwarded to NTPC Farakka for fund requisition.
   On query, he further submitted that they would restore the line first and thereafter the necessary arrangement of handing over would be made.

   MS ERPC, in regard to this raised serious concern about this line and directed JUSNL to get the work done without further delay and to co-ordinate with ECL regarding handing over of the assets.

2. Commissioning of 220kV Tenughat-Govindpur line

   JUSNL representative submitted that Powergrid is doing the work for the 220kV Tenughat-Govindpur line under JCP project. Till date all tower erection has been completed, stringing is in progress and only 3kmstringing is left. He further informed that DVC power line crossing at Loc no.73/02 & 74/02 is going on and the line would get ready for charging by 15th July 2021.

   SE Operation, ERPC raised concern about the readiness of associated bays of the aforesaid line. JUSNL representative in this regard submitted that line bay at Govindpur is ready and that of TTPS side is under progress. Further OCC advised JUSNL to expedite the works regarding completion of the bays in all respect without any further delay by engaging more manpower.

JUSNL representative also mentioned that there was some delay due to ROW issue but now that has been resolved.

Powergrid representative informed that there are fund related issues and they could not engage their contractor due to lack of fund and as a result the work is getting hampered.

JUSNL representative submitted that due to increased cost of the said work under JCP project the fund clearance was pending at Govt. end. However, the additional fund has been approved by the Govt. and the revised order had also been placed to Powergrid. He further informed that the fund would be released by the Govt. shortly.

3. Status of O & M agreement with Powergrid for bay equipments at Maithon end and resolution of autorecloser issues in the 220 kV Maithon-Dumka Lines

JUSNL representative submitted that there were some issues regarding the agreement but now it has been resolved and the same would be finalized within 10 days.

OCC advised JUSNL to take up the matter of auto-recloser with Powergrid and get it done at the earliest.

In view of all the above deliberations, MS ERPC opined that a separate meeting may be convened to discuss all the above issues with the higher officials of JUSNL, since these issues are of utmost importance for smooth operation of the Grid.

In the Special meeting on "Various Operational & Protection issues related to Jharkhand System" held on 05.07.2021 JUSNL was advised that to expedite all the administrative works related to this issue so that the restoration of 220kV Farraka-Lalmatia S/C line can be done at the earliest.

Regarding Commissioning of 220 kV Tenughat-Govindpur Lines JUSNL updated that fund disbursement issue had been resolved and the work has already been resumed. Powergrid informed that the line would be commissioned within July, 2021.

Regarding Status of O & M agreement with Powergrid for bay equipments at Maithon end and resolution of autorecloser issues in the 220 kV Maithon-Dumka Lines JUSNL updated that in-principal approval for maintenance work of bay equipments at Maithon end by Powergrid would be given immediately. Thereafter formal agreement would be signed with Powergrid in this regard.

JUSNL may update.

Deliberation in the meeting:

1. Restoration of 220kV Farraka-Lalmatia S/C line

JUSNL representative submitted that they had got a letter from NTPC on 19th July '21 regarding anti-theft charging of the220kV Farraka-Lalmatia S/C line at 33kV level. Earlier the antitheft charging of the line was done at 11kV level but incidents of thefts have been reported in some portion of the conductor.

Further, Jharkhand representative requested NTPC to submit the details of the 33kV lines passing below 220kV Farakka-Lamatia T/L. He added that as per information obtained from their JUSNL Discom part, the 33kV lines are mostly connected with 11kV feeders and due to

this it would be difficult to charge the Farakka-Lalmatia line at 33kV level in Pakur area.

NTPC representative informed that they had charged the line up to loc no.241 but in between loc no.76-82 only the top conductor was in charged condition and the bottom rest were not; because of this theft might have happened in that portion. He further added that they had already isolated the section from loc no.76-82, whereas up to loc no.76 the line is in charged condition and from loc no.82-241 the line needs to be charged.

ERPC advised NTPC and Jharkhand to explore the possibility of antitheft charging at 33kV level first and if that is not feasible then charging at 11kV can be assessed.

Further, Jharkhand representative raised concern about the O&M activities of the equipment in Lalmatia S/s which may also be rectified before complete restoration of the said line.

NTPC in response submitted that as per CERC order dated 21.07.2020 under Petition No. 280/MP/2019,the O&M activities need to be taken up by Jharkhand.

After detailed deliberation, OCC advised the following:

1. *Jharkhand to take up the matter with their higher authorities regarding taking over of O&M as per the CERC order.*
2. *Jharkhand to share estimate regarding the restoration of the line along with terms and conditions to NTPC at the earliest.*
3. *NTPC and Jharkhand to explore the possibility of antitheft charging of the above said portion at 33kV level.*

2. Commissioning of 220kV Tenughat-Govindpur line

Jharkhand representative submitted that as per the information received from Powergrid the line would be ready by July'21 end and it would take another 15 days for getting the necessary Statutory Clearance.

OCC advised Jharkhand to apply for the necessary Statutory Clearance in the meanwhile so that further delay can be avoided when the line gets ready.OCC advised Jharkhand to co-ordinate with Powergrid and get the said line ready by 15th August 21.

3. Status of O & M agreement with Powergrid for bay equipments at Maithon end and resolution of autorecloser issues in the 220 kV Maithon-Dumka Lines

Jharkhand representative submitted that some queries along with few finance observations had been raised to Powergrid in this regard. However, complete reply from Powergrid side is yet to be received and as soon as they receive the response from Powergrid, they would proceed for the agreement. However, in principle they are ready for the agreement.

ERPC opined that as Farakka-Lalmatia line is not in service at present, Maithon-Dumka line is of vital importance and healthiness of PLCC at both ends is to be ensured.

OCC advised Jharkhand to take up the necessary rectification work for ensuring the healthiness of the PLCC. In this regard, Powergrid has also given consent to Jharkhand for the necessary PLCC work at Maithon end.

Jharkhand representative assured that the PLCC would be restored by 15th August 21.

ITEM NO. B.3: Outage of Important Transmission System.

1. 132kV Sagbari–Melli.

In the 174th OCC meeting, Sikkim informed that 132kVMelli-Sagabari S/C is under outage because of faulty breaker issue at Sagbari end. Sikkim informed that 132 kV Sagbari S/s is under DISCOM jurisdiction.

In the 176th OCC meeting, Sikkim informed that the circuit breaker issue has been resolved.

They further informed that as the line was under outage for more than two years, there were vegetation & RoW issues. They added that there is conductor snapping in the line between loc. 20 and loc. 29.

In 177th OCC Meeting, Sikkim informed that necessary RoW clearance has been received for 80% section of the line and it would take two more weeks to get the clearance for remaining section of the line OCC advised Sikkim to expedite the work and restore the line at the earliest.

In the 179th OCC meeting, Sikkim submitted that patrolling of the line has been completed and necessary maintenance in this regard has already been carried out for 80% of the line section. For the rest 20%, pruning and cutting of trees are to be done and for this they need clearance from the Forest Department.

OCC advised Sikkim to expedite the matter with the Forest Dept. of Sikkim and update the status to ERPC/ERLDC at the earliest.

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 .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 in the 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.

In the 180th OCC meeting, Sikkim representative submitted that they had updated the status

of work vide mail dated 09.06.2021 and there is no further update regarding the said line.

On query regarding the timeline for completion of the work, he added that due to inclement weather condition the work has been slowed down. Once the weather improves they would resume the work in full strength.

Sikkim may update the latest status.

Deliberation in the meeting:

Sikkim representative submitted that for the rest 20% work, they are yet to get clearance from the Forest Department. He further informed that there are also some RoW issues in that portion of the line.

Further, ERLDC representative stressed over the fact that being a very important line, the restoration of the 132kV Sagbari–Melli linemay be done at the earliest.

OCC advised Sikkim to take up the matter with Forest Department for obtaining necessary clearance and also to resolve the ROW issues without any further delay.

ITEM NO. B.4: Repair/rectification of D/C tower at location 79 of 132kV Rangpo-Melli and 132 kV Rangpo –Gangtok line.

Powergrid had informed that their patrolling team had observed bent in part of tower no. 79 of 132kV Rangpo-Melli line and 132 kV Chuzachen(Rangpo)-Gangtok transmission lines which might further degrade the condition of tower.

In 137th OCC, Powergrid informed that tower no. 79 of 132kV Rangpo-Melli line and Chuzachen (Rangpo)-Gangtok transmission lines falls under the jurisdiction of Energy & Power Department, Govt. of Sikkim.

In 43rd ERPC Meeting, Powergrid informed that the tower at location no. 79 is in vulnerable condition and needs immediate attention so as to avoid any further devastation.

Sikkim informed that they are in process of obtaining approval from State Govt. for rectification of the defective tower

In view of importance of the said line for power supply to State Capital, ERPC advised Sikkim to resolve the issue on priority basis and same shall be monitored in lower forum of ERPC.

In the 178th OCC meeting**,** Sikkim informed that they would communicate the status of the proposal for rectification of the defective tower within a month.

In the 179th OCC meeting, Sikkim representative informed that, they had already prepared the estimate which had been placed for approval in CMO office. As soon as the approval gets accorded by the Govt. they would start the work. He further added that the team is also ready for retrofitting.

OCC advised Sikkim to expedite their internal approval and place the work order as soon as possible.

In the 180th OCC meeting, Sikkim representative submitted that the approval is yet to be accorded by the State Govt. and due to Covid-19 lockdown restrictions the matter is getting delayed further.

OCC stressed upon the fact that this line is vital for the State capital Gangtok. Further OCC advised Sikkim to get the approval done and thereafter complete the work without any further delay.

Sikkim representative ensured that they are following up the issue and as soon as the approval gets accorded by the Govt. they would start the work.

Sikkim may update.

Deliberation in the meeting:

Sikkim representative submitted that the rectification work of tower had been completed on 14th July'21.

ITEM NO. B.5: Repeated events of switching off of Melli Source for Kalimpong

Repeated events of Switching off of Meili source of Kalimpong were reported without prior permission / pre-intimation of SLDC, WB and ERLDC even without taking any code from ERLDC. At 15.23 hrs on 10.07.21 and at 14.13 hrs on 14.07.21 Meili Kalimpong 66 KV line was switched off from Meili end without any intimation and consent of both WB and ERLDC.

These types of event has precedence and was discussed in 177thOCC meeting under agenda (Item No.B.4), and OCC advised Sikkim to share the information of any switching operation of 66 kV Melli-Kalimpong Line to ERLDC. OCC also advised Sikkim that during any kind of switching operation of this important tie line, the Melli S/s personnel shall exchange the information with their counterpart in Kalimpong S/s.

But above two events have clearly shown the same practice has been continued from Meili end. Due to this West Bengal has raised their serious concern on this kind of events.

Sikkim may explain.

Deliberation in the meeting:

Sikkim representative submitted that generally for switching off of 66 kV Melli-Kalingpong line at Melli end, they always inform WB SLDC and give prior intimation to their Kalimpong counterpart. However, as this 66kV line is embedded in intrastate transmission network, ERLDC was not informed about switching off.

SLDC WB representative raised serious concerns about repeated incidents of switching off of Meili source of Kalimpong without prior permission of SLDC, WB and ERLDC. He added that as the said line is a tie-line, during switching operation of the same, code has to be taken from ERLDC and the same was also discussed in 177th OCC Meeting.

Sikkim representative submitted that they had to carry out some urgent work andthey had to arrange manpower and machinery within a very short time for carrying out the work. He further

intimated that considering the geographical location of Sikkim and availability of man and machine, they could not plan for such kind of jobs in advance.

OCC advised Sikkim to take necessary code from ERLDC in case of any switching operation of inter-state tie line (i.e. 66 kV Melli-Kalingpong line) as per the Operating Code of ER. Further,

OCC also opined that the contact details of concerned representative of SLDC, Sikkim and SLDC, WB may be exchanged for smooth and efficient communication between them.

Contact Details of Kalimpong: Suzu Sherpa, 9434910504, kpg_transmission@rediffmail.com, sldcshutdown@gmail.com (WB, SLDC)

Contact details of Melli: Pranay Karki, 9647874671

ITEM NO. B.6: Reliability Issue at 220/132 kV BudhipadarS/s

The reliability issue at Budhipadar was discussed during analysis of the grid disturbance at Budhipadar S/s on 08/04/2021 in 101st PCC meeting. The issue was also discussed in 178th OCC meeting held on 20/04/2021.
Subsequently in the special meeting held on 10/05/2021, the followings were decided:

a. The opening of 220 kV Vedanta-Budhipadar lines from Vedanta would be decided based on the system study to be carried out by OPTCL.
b. Further, SLDC Odisha will plan and submit a SPS for further contingency at Budhipadar and subsequent generation reduction at IB TPS units.
c. OPTCL to take utmost measure in ensuring the healthiness of substation equipments at Budhipadar till the time the short term measures are being implemented.

Further, OPTCL vide letter dated 29/06/2021 have submitted the study report for intrastate constraints in Odisha system in Budhipadar command area. The report is enclosed at **Annexure-B6**.
The issue of implementation of the SPS at Budhipadar S/s was discussed in 104th PCC meeting held on 13/07/2021 and it was decided to refer this issue to OCC meeting for detailed deliberation.

OPTCL may explain. Members may discuss.

Deliberation in the meeting:

OPTCL representative submitted that they are implementing SPS for the first time and they do not have expertise for designing the SPS. He further submitted that in OPTCL transmission network several CPPs & IPPs are connected and if SPS is implemented their operational requirements also need to be taken care while designing SPS.

Keeping in view the issue raised by OPTCL, OCC advised SLDC Odisha to co-ordinate with GRIDCO, OTPCL, OPGC and ERLDC for getting necessary help in this matter. OCC opined that a separate meeting may be convened among them for designing the SPS.

Further, OCC decided that a special meeting would be convened in the 1st week of August '21 for discussing the SPS for enhancing the reliability of Budhipadar S/s and the outcome may be placed in the next OCC meeting.

ITEM NO. B.7: 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-B7.

Members may update.

Deliberation in the meeting:

Members updated the status as follows:

Bihar: *Updated status is given at Annexure-B7.*

Jharkhand: *Submitted that for the communication part, work would be awarded by 15th August '21 and the remaining work would be completed within 1 month.*

OPTCL: *Updated that the status is same as the last updated one.*

OHPC*: Updated that the work would be completed by Dec'21.*

WBSETCL: *SLDC, WB submitted that for SAMAST project, for the metering part three nos. of bids have been received and tender evaluation is under process whereas for the software & hardware part pre-bidding has been done and tender would be floated soon.*

WBPDCL: *Updated that requisition of final 10% fund related to Kolaghat and Bakreshwar project would be placed in the fourth quarter. Work of Santaldhi project would be completed bySept'21 and that of Kolaghat by Nov'21.*

DVC: *Submitted that among the three nos. of PSDF Projects in Jharkhand region, the projects under Dhanbad and Giridhi regions are at the verge of completion and the project under Jamshedpur region is getting delayed due to shutdown issue of Jamshedpur-Jindal line. Shutdown of the line was requested earlier but due to Oxygen Plants' connectivity with the line, the same was denied.*

After detailed deliberation it was decided that shutdown for Jamshedpur-Jindal line would be allowed for 28th and 29th July'21.

ITEM NO. B.8: Status of implementation of AGC as a pilot project in States.

In 42ndTCC, 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.

In 169thOCC Meeting, SLDC DVC informed that due to COVID-19 pandemic, participation in the tender was very less therefore they are floating a new tender for implementation of AGC. AGC would be implemented by Feb 2021.

Odisha informed that they could not visit Barh NTPC and NLDC due to ongoing COVID 19 pandemic situation.

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

Latest Status of implementation:

State	Station/Unit	Deliberation in 180th OCC Meeting
DVC	Mejia unit#7 &8	DVC representative informed that they had invited for fresh budgetary offers in this regard. SE (O), ERPC advised DVC to expedite this as it has been getting delayed since last three months. DVC submitted that the process also got delayed due to Covid-19 situation. He further ensured that the matter would be expedited and finalized soon.
West Bengal	Unit-5 of Bakreswar TPP	SLDC, West Bengal representative informed that for implementation of AGC among state generators there are two parts to sort out. Firstly, a quantum of DC of WBPDCL plants has to be kept as a hot spinning reserve out of 100% allotment to WBSEDCL for utilization under AGC. In present regime,the capacity charge of the plants for that quantum spinning reserve cannot be claimed from WBSEDCL. So, there should be a regulation of WBERC to cover these financial settlements of state generators scheduled to its beneficiary and actually declared by the plant under AGC after implementation of AGC as per direction of WBERC. Secondly the capital cost involved to implement AGC in different state generators and in SLDC should be approved by WBERC to adjust in tariff. Accordingly, necessary orders /regulations need to be issued by WBERC to cover the above points. He further requested the forum to place the matter in the next TCC meeting.
	Unit#3 of OPGC	OPGC representative informed that they had finalized all the technical specifications in consultation with Siemens and are ready to place the order. He further submitted that the necessary command for AGC has to be given by SLDC itself. SLDC Odisha representative submitted they would discuss

		with OPGC and Siemens and resolve the issue by 15th July'21.

Members may update.

Deliberation in the meeting:

State	Station/Unit	Deliberation in 181st OCC Meeting
DVC	*Mejia unit#7 &8*	*DVC representative informed that the technical offers from vendors have been received. Expected date of placing Indent is 28th July 21 and that of PO is by 30th Sept '21.*
West Bengal	*Unit-5 of Bakreswar TPP*	*OCC referred it to next TCC meeting.*
Odisha	*Unit#3 of OPGC*	*OPGC representative submitted that they had communicated with M/s Siemens and the budgetary offer has already been received but discussion with SLDC is yet to be done.* *OCC advised OPGC to coordinate for a meeting with Siemens and SLDC Odisha to discuss the matter and also advised them to share the outcome of the meeting to ERPC & ERLDC by 31st July 21.*

ITEM NO. B.9: Reactive power performance of generating units during the high voltage condition

A. Performance of Regional Generators:

During 180thOCC meeting of ERPC, ERLDC highlighted the issue of inadequate reactive power absorption by generating units during the high voltage condition. Due to inadequate reactive power absorption by generating units, voltage at various 400 kV and 765 kV remained high. As per ERLDC SCADA data the reactive power absorption of following regional generating units (ISGS & IPP) was inadequate during 01stJuly 2021 to 12th July 2021.

Name of generating units	Maximum MVAr absorption limit (as per capability curve)	MVAr absorption during maximum voltage (as per ERLDC SCADA data)	Maximum voltage during July 2021
Kahalgaon STPS Stage I - 210 MW Unit -1, 2, 3 & 4	> 60 MVAr	< 10-20 MVAr	421 kV
Kahalgaon STPS Stage II - 500 MW Unit – 6 & 7	> 150 MVAr	< 20 MVAr	421 kV
Barh STPS Stage II - 660 MW Unit - 4& 5	> 200 MVAr	<110 MVAr (For significant amount of time MVAr absorption < 40 MVAr)	422 kV
BRBCL - 250 MW Unit -1, 2 & 3	> 100 MVAr	0 MVAr (Unit was generating 20-30 MVAr)	415 kV
Nabinagar STPP	> 250 MVAr	<30 MVAr	420 kV

Stage I - 660 MW Unit -1			
MPL - 525 MW Unit -1 & 2	> 150 MVAr	< 20 – 40 MVAr	413 kV
JITPL - 600 MW Unit -1 & 2	> 200 MVAr	0 MVAr (Unit was generating 100-130 MVAr)	407 kV

The details of the same is also attached at **Annexure-B9**

In view of the above generating plant to share the following details:

- Reason for not providing VAR absorption in line with capability curve.
- Action taken based on deliberation of 180th OCC meeting and ERLDC letter dated 05th July 2021.

Generators may update.

Deliberation in the meeting:

ERLDC representative informed that on the basis of the June MVAr absorption report, a communication had been given to the defaulting generators. However, any response is yet to be received from the concerned generators.

NTPC representative submitted that they would collect the data from Kahalgaon STPS and submit the same to ERPC & ERLDC.

Barh representative informed that they are in discussion with the OEM team and are trying to improve the MVAr absorption.

OCC advised Barh to share the action plan in this regard to ERPC & ERLDC at the earliest.

BRBCL representative submitted that they would take up the matter with BHEL. He further mentioned that in auto mode operation, as per the capability curve, the absorption is not satisfactory. Further in order to increase the MVAr absorption they had instructed their shift in-charge to increase the MVAr absorption manually. ERLDC in response expressed that manual absorption of MVAr is not recommended as far as the stability of units is concerned.

OCC advised NTPC Corporate Office to coordinate with their defaulting generating plants and submit their responses to ERPC and ERLDC at the earliest.

B. Inadequate reactive power support from Mejia TPS during cyclone Yaas.

During cyclone Yaas, load in Jharkhand and DVC area became very low. As a result, high voltage condition occurred at Maithon. Though MVAr support was expected from nearby generating stations like Mejia B, MVAr absorption was very low by those generating stations (in order of 10-20 MVAr by 500 MW unit). DVC was requested to share reason for inadequate VAR absorption by Mejia B unit 7 & 8 vide mail dated 27th May 2021.

DVC SLDC in coordination with generating station may share reactive power performance of Mejia B and share plan of action in order to improve MVAr support of this generating station.

Reactive power performance of other generating units may also be checked by SLDC.

In the 180th OCC meeting, DVC representative informed that as per the information obtained from Mejia, particularly on the day of Yaas Cyclone, there was high voltage in the system and limitation in terminal voltage absorption was also there. Mejia couldn't perform up to the mark due to the above reasons.

He further informed that they had requested for MVAr data from Mejia for the month of May 2021 and thereafter thorough study would be carried out by them.

OCC advised DVC to share the details of the study along with their findings to ERPC & ERLDC.

DVC may update.

Deliberation in the meeting:

SLDC DVC representative informed that they had already shared necessary data with ERLDC. He added that bus voltage was around 414-415kV, load was around 400 MW and MVAr absorption was in the range of -25 to 30MVAr. At that instance there was no scope to increase the absorption further.

He mentioned that GT tap position was at 5 (normal) on that day. If they had kept the tap position at 6, there would have been a chance for increased absorption but during that time it was not possible for them.

ERLDC opined that DVC may go for tap changing if the voltage profile remains generally on the higher side.

OCC advised ERLDC to carry out a comprehensive study of the voltage profile of that area and suggest the action plan accordingly.

ITEM NO. B.10: Healthiness of 89T isolator of ICT-V at Malda

On 13.03.21 400/220kV 315MVA ICT#5 at Malda required emergency outage (hand tripped), as 400kV side CB lockout occurred. POWERGRID informed via mail that 315 MVA ICT - V cannot be charged through 400 kV TBC because, it was observed that B-ph 89 T PG Isolator spring has broken and is not operational, which compelled for forced manual tripping of ICT-5. On 14.03.2021 early morning, during emergency restoration of ICT-5 through 400kV TBC bay, some shorting arrangement at 89T isolator of ICT-5 was made to restore ICT-5 through TBC.
On 19.04.2021 at 13:15 hrs, 315MVA, 400/220kV ICT- V at Malda has been Emergency hand tripped due to sudden flash over at 89T isolator. ICT -V was restored through Main Bay.

In the 179th OCC meeting, Powergrid representative informed that problem in 89T isolator still persists, and for that they have already applied shutdown for normalization from TBC bay to Main Bay after isolating the faulty isolator.
Powergrid representative further added that as 89T is a line side Isolator, any maintenance of it would require shutdown of ICT 5. Upon query he mentioned that all the other isolators and breakers of the TBC have been replaced and there is no issue related to the operation. But the said bay isolator has problem due to ageing problem and it was planned to be replaced during the ICT augmentation work. However, Powergrid has planned for phase wise replacement of 89T and 89 M2 under O&M activity which will be done on daily basis shutdown and it would require 7-8

days in order to get the work done.

OCC advised Powergrid to submit the detailed replacement plan to ERPC/ERLDC for further action.

In the 180th OCC meeting, Powergrid representative informed that they had already given the schedule for shutdown details and the same has already been approved. He further added that the work is expected to be completed by July 2021 subject to weather conditions.

Powergrid may update.

Deliberation in the meeting:

Powergrid representative submitted that they need shutdown from 24th July to 25th July'21 on continuous basis, as it involves complete equipment replacement.

West Bengal representative informed that they had already given their consent for the shutdown.

Powergrid representative further assured that the work would be completed by 25th July'21 (Evening).

ITEM NO. B.11: Difficulty in charging lines in between Generating Stations

There is a prevailing issue on the charging of transmission lines connecting two generating complex after its outage/tripping. It has been observed that sometimes either of the utility is not ready for charging of the line from their end after its tripping on fault/outage. This results in the delay in the restoration of line and thus affecting the reliability of both the generating station. In view of this, there is a need of guideline on charging of such transmission lines. In 150th OCC Meeting guidelines for the charging of Transmission line connecting two generating plants after tripping on fault or outage were outlined.

The following general guidelines were discussed for consideration:

- If voltage difference between two systems is more than 5 kV, systems which have lower voltage should charge the line.
- In case voltage difference is less than 5 kV, systems which have higher fault level should charge
- If only one end has line reactor than the end which is not having the line reactor should attempt to charge first.

However during real time operation same issue prevails leading to inordinate delay in charging of transmission lines.

Members may discuss.

Deliberation in the meeting:

ERPC mentioned that the issue was earlier discussed in various OCC meetings. He further mentioned that as the guidelines had been prepared based on the system condition, the same shall be followed strictly.

On query, ERLDC representative raised concern regarding delay in charging by NTPC stations especially FSTPS & KhSTPS. He further added that total five nos. of events had occurred in the last 2-3 months as follows:

Date	Description	Remarks
5th May 2021	Farakka-Kahalgaon-II	1 hr delay
6th May 2021	Farakka-Kahalgaon-II	1 hr delay
16th June 2021	Farakka-Sagardighi I	1 hr delay
22nd June 2021	Farakka-Kahalgaon-III	1 hr delay
29th June 2021	Farakka-Kahalgaon-IV	4 hr delay

OCC advised ERLDC to provide the necessary details regarding defaulting generators to NTPC Corporate for necessary action.

OCC further advised NTPC FSTPS & KhSTPS to strictly follow the instructions of ERLDC in real time as per guidelines and if there is any issue regarding charging of line between generating stations, the same may be placed before the OCC forum for resolution.

ITEM NO. B.12: Sharing of SPS and load trimming scheme implemented in STU network under SLDC's jurisdiction.

It is observed that for managing STU network constraint and for avoiding cascading in STU network, sometimes state utilities are designing and implementing some SPS, load trimming or RAS scheme within the state network.
Operations of these SPS are sometimes changing the network topology and huge impact on the ISTS network as well. However due to lack of information regional system operators are unaware of the original cause of such huge flow pattern change and this creates problem managing the regional grid reliability and security. In view of the above mentioned concern of regional system operators all SLDCs are requested submit the following details:

1. All SPS, load trimming and RAS scheme already implement in the state system.
2. Sharing of information, prior to the implementing of New SPS or disabling of existing SPS.
3. Details of SPS operation on real time basis as and when SPS is operated.

SLDCs may update.

Deliberation in the meeting:

ERLDC representative submitted that the real time operation details of any SPS/Load trimming scheme implemented in STU network need to be shared with them as all the SPS which have load trimming scheme and are connected to the system having direct effect on the ISTS network.

Concerned utilities submitted the following:

- ***Bihar:*** *Submitted that there is no existing SPS scheme in their STU network. However, there is a proposed SPS scheme for 220kV Biharshariff.*
- ***Jharkhand:*** *Submitted that they would check &submit the details of SPS, if any, by 31st July'21 to ERPC & ERLDC.*
- ***DVC:*** *Submitted that there is no SPS scheme in DVC network.*
- ***Odisha:*** *Submitted that there is no SPS scheme in Odisha STU network.*

- ***West Bengal:*** *Submitted that they had already shared the details of the SPS implemented in 400/220/132kV level to ERLDC.*

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OCC advised ERLDC to update the list of SPS in ISTS and State system and the same may be shared to ERPC.

ITEM NO. B.13: Ensuring unit wise generation data availability from all CPP plant having capacity more than 100 MW for Online Inertia Monitoring.

High penetration of renewable is a big concern from reducing of grid inertia point of view. Sometimes grid inertia may become such low that it could threaten the grid stability. Therefore at all RLDC and NLDC level monitoring of synchronously connected generator inertia has started. Initially, CPP plant having units above 100 MW are also considered for monitoring, as they contribute good amount of inertia. Therefore maintaining unit wise data availability from these CPP is extremely important and SLDCs are requested to extend necessary support to the SCADA team of RLDC for data integration and other necessary action thereafter.

SLDCs may comply.

Deliberation in the meeting:

ERLDC representative informed that with large infusion of renewable energy, inertia of the Grid is getting reduced and for this reason inertia monitoring plays a vital role for the smooth operation of the Grid. On query, he mentioned that CPPs having capacity more than 100MW have been considered for monitoring as they have significant contribution to the grid from inertia point of view. He further added that at present there is no data visibility over the CPPs. However, monitoring of the regional generators as well as state generators has already been started.

On query, concerned utilities submitted the following:

- ***Bihar, Jharkhand, West Bengal:*** *Submitted that they do not have any CPP of 100MW capacity*
- ***Odisha:*** *Submitted that they only get the details of net import and export of CPPs. Further, there is no regulatory provision regarding the same.*
- ***DVC:*** *Submitted that they have 03 nos. 120MW CPP of Tata Steel.*

In view the above, OCC advised ERLDC to discuss the matter with SLDC Odisha and SLDC DVC for collection of the relevant data.

ITEM NO. B.14: Additional Agenda

1. Status of 400kV Jigmeling – Punatshangchu – Alipurduar Interim Line

With the successful charging of the 400kV Jigmeling – Alipurduar Quad Moose direct line 1 & 2 on 22nd and 18th June 2021 respectively, the direct lines have been kept continuously charged along with one 400kV Jigmeling – Punatshangchhu – Alipurduar interim line where power is being evacuated from all these lines.
With the stabilization of direct Jigmeling – Alipurduar lines, it is proposed to switch off the interim 400kV Jigmeling – Punatshangchhu – Alipurduar line and use only the direct Jigmeling – Alipurduar lines for evacuation of power through Jigmeling Substation. The interim lines shall be

kept as standby for evacuation of Mangdechhu power during contingencies only.
Also, as requested and proposed by POWERGRID during the 180th OCC Meeting, POWERGRID may keep the interim lines idle charged up to Jigmeling Substation from Alipurduar end as antitheft measure.

Members may discuss.

Deliberation in the meeting:

Bhutan representative submitted that they had sent a letter to POSOCO regarding idle charging of the 400kV Jigmeling – Punatshangchhu – Alipurduar interim line. He further added that Powergrid may take necessary steps at Alipurduar end for idle charging the same.

Powergrid representative stressed on the fact that idle charging of the interim line is necessary as an antitheft measure. However, for permanently switching off the line, the matter may be discussed at appropriate forum. He further submitted that from system operation point of view there are multiple technical parameters that are to be assessed by ERLDC.

ERLDC representative mentioned that maximum 2-3 lines can be kept in charged condition and 1 line in off condition. He further mentioned that during high hydro season the lines can be kept in charged condition but during the lean hydro period keeping this line in service may lead to rise in system voltage.

After detailed deliberation, OCC referred the agenda to the Indo-Bhutan Co-ordination Committee meeting and advised Bhutan, Powergrid and ERLDC to take up the same in co-ordination with NLDC, India and NLDC, Bhutan.

2. Replacement of Check Energy Meters at 132kV Gelephu & 132kV Motanga Substation

During the 44th Commercial Sub-committee Meeting held on July 07, 2021, ERLDC had raised issue regarding non-submission of weekly energy meter data from 132kV Gelephu and 132kV Motanga Substation since more than a year. POWERGRID informed that the check energy meters at both the above substations are of L&T-make which are old and spares not available, and hence proposed for replacing the check energy meters at both substations with Genus-make energy meters. POWERGRID informed that due to COVID-19 travel restrictions, their representative could not travel to Bhutan and therefore enquired if Bhutanese counterpart could collect and install the energy meters if the same were delivered at Indo-Bhutan border in Gelephu and Samdrupjongkhar respectively.

Bhutan Power Corporation (BPC), the owner of the Gelephu and the Motanga Substation, had confirmed to take the energy meters from the Indo-Bhutan border and shall be installed provided POWERGRID provides the detailed installation and data downloading guidance.

During the recent commissioning of 400kV Jigmeling-Alipurduar Quad Moose direct line, the same procedure was followed where POWERGRID had delivered the check energy meters at the Indo-Bhutan border in Gelephu, and BPC had collected and installed in the two 400kV feeders.
POWERGRID is requested to do the needful with prior information to DGPC/BPC. POWERGRID is also requested to confirm the plan for replacement of other L&T/old check energy meters at Chhukha, Tala & Malbase Substations with Genus-make energy meters.

Powergrid may update.

Deliberation in the meeting:

Powergrid representative submitted that they would hand over the two (2) nos. of Meter for Gelephu and Motanga S/s along with all the details of the meter to Bhutan representative and would give prior intimation to Bhutan about the schedule within one week.

OCC advised Powergrid to share the necessary details to Bhutan with a copy to ERPC & ERLDC.

3. Abnormal error between main and check energy meters of 220kV Chhukha-Birpara Feeders

a. The percentage error of the readings between main and check energy meters of Chhukha-Birpara (CB) Feeder No. 1 at Birpara end was noticed beyond the permissible limit on June 14, 2021 and thereafter from June 17, 2021 onwards. The error started with 1.7% and increased to 283% on July 01, 2021. However, the percentage error was found to be within the permissible limit of ±0.6 % from July 02, 2021 onwards. The percentage error between main and check energy meters at Chhukha end remained within the permissible limit throughout the above duration. The statement of energy recorded by main and check energy meters of 220kV CB Feeder No. 1 at both Chhukha and Birpara end from June 10, 2021 to July 15, 2021 is at **Annexure – 3.1.**

b. The percentage error between main and check energy meters of Chhukha-Birpara (CB) Feeder No. 2 at Birpara end was also noticed beyond the permissible limit on June 14, 2021 and thereafter from June 18, 2021 onwards. The error started with 1.5% and increased to77% on June 24, 2021. The percentage error remained very high till July 01, 2021, and thereafter it was found to be within the permissible limit of ±0.6 % from July 02, 2021 onwards. The percentage error between main and check energy meters at Chhukha end remained within the permissible limit throughout the above duration. The statement of energy recorded by main and check energy meters of 220kV CB Feeder No. 2 at both Chhukha and Birpara end from June 10, 2021 to July 15, 2021 is at **Annexure – 3.2.**

Due to very high percentage errors in Chhukha – Birpara (CB) feeder 1 & 2, the check energy meter reading at Birpara end had to be considered for the purpose of energy export accounting by Chhukha for the month of June 2021.

CHP-DGPC requested POWERGRID, Birpara to look into the issue of very high percentage error between the main and check energy meters. POWERGRID, Birpara Substation vide email dated July 16, 2021 intimated that the very high percentage error observed for around 15 days might be a momentary hanging issue of the energy meters. POWERGRID also certified that those energy meters are healthy at present since no errors were observed since July 02, 2021.

DGPC would like to inform that this type of abnormally high percentage error was never observed in any of the energy meters earlier and is a concern now for CHP-DGPC. Further, the momentary hanging issue as intimated by POWERGRID cannot be correct since the problem had occurred simultaneously in the main energy meter of both Feeders No. 1 & 2.

Since the above energy meters are being used for the commercial energy accounting of Chhukha export energy, it is of paramount importance that the energy meters remained always healthy so that there are no commercial issues in future. Therefore, POWERGRID is requested to carry out the detailed Root Cause Analysis of the above issue and share the report with OCC/CHP-DGPC. POWERGRID is also requested to test the energy meters at Birpara end OR replace the main

energy meters by a reliable energy meter.

Powergrid may update.

Deliberation in the meeting:

Bhutan representative submitted that Chukha officials requested Powergrid Birpara to look into the problem of erroneous meter reading at Birpara end. Powergrid officials at Birpara end informed the Chuka officials that there was temporary hanging problem in the main meter, however the Check meter's recording is correct. Bhutan representative further submitted that root-cause analysis may be carried out and if required the meters at Birpara end may be replaced by Powergrid in order to avoid any further issues regarding erroneous meter reading.

ERLDC representative stated that as per the data available at their end the percentage error of the readings between main and check energy meters of Chhukha-Birpara- 1 and 2 is well within the permissible limit.

ERLDC representative advised Bhutan to go through the relevant meter data available at ERLDC's website and if they find any discrepancies regarding the meter readings, they can approach ERLDC.

Further, Powergrid representative mentioned that the data is collected remotely through AMR for commercial accounting. There might have been some problem in display of the meter but the data is being continuously transferred through AMR. However, as per Bhutan's request Powergrid representative ensured that they would check the meter reading display at the Birpara end.

4. Loading of 400kV Tala-Siliguri Feeders

The prolong shutdown of Tala-Siliguri 400kV Feeder 1 due to damage of the Outdoor Termination of the XLPE Cable on Y-Phase was informed in the 180th OCC Meeting. DGPC is trying all possible measures to restore the feeder at the earliest possible but due to the challenges posed by the COVID-19 Pandemic in getting the service, it is unlikely the feeder can be restored within this peak hydro generation season. There are other three healthy 400kV feeders, which is sufficient to evacuate the power generation of Tala HEP.

However, in view of the uncertainty of the availability of these three feeders throughout the season, some contingency plan needs to be in place to avoid generation loss should any of the remaining healthy feeders fails. At present the feeder loading capacity of the 400kV Tala – Siliguri feeders are restricted to 623MW based on the limitation of the CT ratio of 1000/1A at Siliguri end, although the transmission lines are capable to carry 907.85 MW at 750C ambient temperature.
DGPC would like to request POWERGRID to increase the CT ratio and loading limitation of the line at their end in order to have redundancy in place in case of the failure of the healthy feeders.

Members may discuss.

Deliberation in the meeting:

Bhutan representative submitted that Tala-Siliguri 400kV Feeder 1, which is out due to damage of Outdoor Termination of the XLPE Cable on Y-Phase, is unlikely to be restored within this peak hydro generation season. In this regard they had also requested Powergrid New Siliguri S/s to increase the CT ratio from 1000/1A to 2000/1A. He added that at present only 3 nos. feeders are

in service andfeeder loading capacity of the 400kV Tala – Siliguri feeders are restricted to 623MW based on the limitation of the CT ratio of 1000/1A at Siliguri end, although the transmission lines are capable to carry 907.85 MW at 750C ambient temperature. Since this is a high hydro season, in order to avoid losing of any generation, CT ratio may be increased to 2000/1A so that power flow can be increased.

OCC advised Powergrid to resolve the issue at the earliest.

Powergrid representative assured to change the CT ratio after consultation with their corporate. He further mentioned that shutdown would be required for carrying out the work.

PART C: ITEMS FOR UPDATE

ITEM NO. C.1: ER Grid performance during June'2021

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month June-2021 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)
456	498 04-06-2021	23504 MW, 04-06-2021 00:01 Hrs.	14504 MW, 01-06-2021 17:57 Hrs.	3933	3841

ERLDC may present performance of Eastern Regional Grid.

Deliberation in the meeting:

The presentation on performance of Eastern Regional Grid during the month June'2021 is placed at Annexure C1.

Members noted.

ITEM NO. C.2: Performance of Primary frequency response of ER generating units

Frequency response characteristics (FRC) have been analyzed pan India for one event of sudden frequency change that occurred in June 2021. The details of this event and the overall response of the Eastern region have been summarized in following table.

Event	Frequency Change	ER FRC
Event 1: On 11th June 2021 at 16:02:42:120 Hrs, 1500 MW generation loss at Rajasthan in NR.	**50.09 Hz to 49.92 Hz**. Later stabilized at 50.00 Hz.	**51 %**

Summary of the response of regional generating stations/SLDCs are given in following table.

Generating Station/ SLDC	Response observed
NTPC Farakka	**Satisfactory for Unit 6; Non satisfactory for other units** (Response observed Unit 2: 0, Unit 3: 2MW, Unit 4,5: 6 MW)
NTPC Kahalgaon	**Satisfactory**
NTPC Talcher	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
NTPC Barh	**Satisfactory (**Around 70% of ideal response**)**
NTPC Darlipalli	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
BRBCL	**Satisfactory** for unit 2 & 3. **Non-Satisfactory** for unit 1.
NPGC Nabinagar	**Satisfactory,** But response withdrawn within 3 min at rate faster than 1% per min.

Generating Station/ SLDC	Response observed
GMR	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
JITPL	**Non-Satisfactory**
MPL	**Satisfactory**
Adhunik	**Non-Satisfactory**
Teesta V HEP	Unit was not in service
Teesta III HEP	**Satisfactory**
Dikchu HEP	Unit under spillage condition. No margin was available.
Bihar SLDC	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
Jharkhand SLDC	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
DVC SLDC	**Satisfactory**
GRIDCO SLDC	**Non-Satisfactory**
WB SLDC	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**

Detailed analysis is attached at **Annexure-C2**
Generator end data/FRC is yet to be received from following generating stations/SLDCs

1. NTPC Talcher
2. NTPC Darlipalli
3. GMR
4. Bihar SLDC
5. Jharkhand SLDC
6. WB SLDC

Generators may respond.

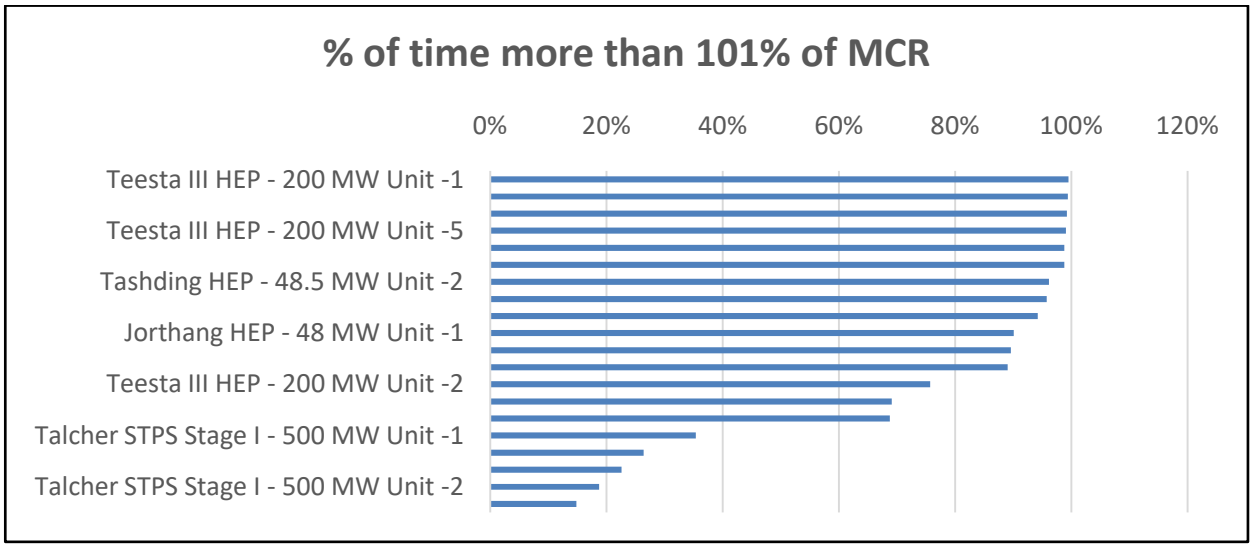
Deliberation in the meeting:

OCC advised all the respective generators to comply with the requirements for satisfactory performance of the primary frequency response.

Members noted for compliance.

ITEM NO. C.3: Running Generating units at more than MCR

During 180thOCC meeting of ERPC, ERLDC highlighted the issue of over injection by generating units at more than MCR. Due to running unit at more than MCR, margin for primary frequency response gets exhausted and machine cannot provide sufficient primary frequency response during the event of sudden frequency change. As per ERLDC SCADA data, following regional generating units (ISGS & IPP) generated at more than 101% of MCR (1% margin is considered to offset SCADA measurement error) for significant amount of time during 01st July 2021 to 12th July 2021.



Generation duration curve for GMR TPS Unit 1 & 2, Talcher STPS Unit 1 & 2 and Darlipalli STPS Unit 1 for 01st July to 12th July 2021 are provided at **Annexure C3**.

Talcher STPS, GMR TPS and Darlipalli STPS may share the reason for over injection.

Deliberation in the meeting:

ERLDC representative informed that the generators that are running their units more than the unit capacity, the margin left for PFR may not be adequate to get the proper frequency response. Also a letter to the defaulting generating stations had been sent on 05th July'21.The generators are requested to run their units as per their unit capacity so that margin for PFR can be ensured. Further, some hydro generating stations namely Dikchu and Tashiding are generating more than 110%; this pattern needs to be avoided as it hampers the equipment's life.

NTPC representative submitted that they are running their units as per their schedule, but sometimes due to coal quality issue they are not able to adhere to the schedule. He further informed that they are taking up the issue with their stations and ensured that the issue would be rectified.

GMR representative submitted that there was some tuning problem with the CMC, once the problem is sorted, issue of over injection would be resolved.

ITEM NO. C.4: Primary Frequency Response Testing of ISGS Generating Units

In 176th OCC Meeting, ERLDC informed that as per preliminary report received for units where PFR have been completed, the primary frequency response observed during testingwere satisfactory.

In 177th OCC Meeting, ERLDC informed that information regarding testing schedule of JITPL & GMR has not been received.

OCC advised GMR & JITPL to share their schedule for PFR testing to ERLDC.

In the 178th OCC meeting, GMR updated that the PFR testing for their units have been scheduled in the month of May'21 and the date of scheduling would be intimated shortly.

In the 179th OCC meeting, GMR updated that the PFR testing for their units have been scheduled in the month of May'21 but due to the prevailing pandemic situation and lockdown restriction it has been delayed. On query GMR further updated that, once confirmed, the next date would be intimated to the OCC forum.

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. The status of the testing schedule for the generators is enclosed at **Annexure-C4**.

Generators may update.

Deliberation in the 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.

ITEM NO. C.5: Testing of Primary Frequency Response of State Generating units by third party agency.

In the 171stOCC 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

DVC informed that both the agencies M/s Siemens & M/s Solvina have agreed to carry out the testing at pre-agreed rates, terms & conditions.

In the 176thOCC meeting, OPGC informed that they would finalize the order with Siemens by end of Feb'2021.SLDC, DVC informed that indent has been placed for PFR testing of their generating units. On request from WBPDCL, OCC advised ERLDC to share all relevant documents related to selection of the vendor for PFR Testing along with contact details of the vendors to West Bengal SLDC for further sharing by them with their state generators.

In 177thOCC Meeting, SLDC, Bihar informed that PFR testing for Barauni TPS would be completed by April '2021. OHPC informed that PFR testing is being planned to be carried out for

units of Indravati & Rengali. OCC advised OHPC to submit a schedule for testing to ERLDC/ERPC secretariat.

OCC advised SLDC DVC, SLDC West Bengal & SLDC Jharkhand to coordinate with their generators and submit the schedule of PFR testing.

In the 178th OCC meeting**,** WBPDCL informed that they have received some of the relevant documents from SLDC West Bengal. Further they informed that they are collecting some other information to finalize the scope and purchase order for PFR testing.

DVC informed that the indent has been placed for PFR testing of generating units and the order would be placed tentatively in October'21.

In the 179th OCC meeting, WBPDCL submitted that they are in contact with Siemens in this regard and once they get any update, they would intimate the same in the next OCC meeting.

In the 180th OCC meeting, WBPDCL representative submitted that they are consulting with DVC Mejia and NTPC Farakka regarding this and informed that they would share the further update to ERPC and ERLDC.

SLDC Jharkhand representative informed that they had communicated with Tenughat, buy yet to get any update from them.

DVC representative informed that they had already placed the indent in the month of April'21. OCC advised DVC to give the update to ERPC and ERLDC.

OHPC representative submitted that PFR testing has been proposed for Rengali and Upper Indravati Stage-I. Accordingly, they have contacted M/s Solvina and are in process of placing order to them. He further informed that the work is expected to be completed by July'21.

Members may update.

Deliberation in the meeting:

WBPDCL representative submitted that they had received budgetary offer from M/s Siemens and M/s Solvina. Subsequently they had raised some queries to M/s Solvina in this regard. After getting the response they would be in a position to place the order.

SLDC, Jharkhand representative submitted that no update has been received from Tenughat. OCC advised SLDC, Jharkhand to collect the necessary details and intimate ERPC and ERLDC at the earliest.

DVC representative submitted they would update the details by 22nd July'21.

OHPC representative informed that response of some financial queries is yet to be received from Sovina and after getting the response they would place the order by August'21.

ITEM NO. C.6: 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 177th OCC Meeting, DVC informed that PSS tuning of Unit#1 of Bokaro-A TPS had been completed.

WBSEDCL stated that the status of PSS tuning in PPSP units would be submitted shortly.

In the 178th OCC meeting, ERLDC informed that PSS tuning for APNRL units were carried out however it was not successful due to some technical issue at APNRL end.It was informed that PSS tuning of Unit#4 of Mejia TPS of DVC had been completed on 07.04.2021.

In the 179th OCC meeting, on query ERLDC submitted that they are yet to receive update from APNRL and JITPL.

In the 180th OCC meeting, ERLDC submitted that they are yet to receive any update from APNRL and JITPL.

The updated schedule for PSS tuning of the units is attached at **Annexure-C6**.

Members may update.

Deliberation in the meeting:

APNRL representative submitted that they had gone for PSS tuning but it was not successful. He further informed that they are again planning to go for PSS tuning in August'21.

ERLDC representative submitted that they are yet to receive any update from JITPL.

ITEM NO. C.7: Status of UFRs healthiness installed in Eastern Region.

UFRs healthiness status has been received from West Bengal.

Members may update.

Deliberation in the meeting:

West Bengal, Bihar, DVC & Jharkhand have submitted the status of UFR healthiness.

On query, Odisha representative informed that that all the UFRs are healthy and they would send the details to ERPC shortly.

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

In 108th OCC meeting, respective constituents agreed to certify that the islanding schemes under their control area are in service on monthly basis.

Details received from the constituents are as follows:

Sl. No	Name of Islanding Scheme	Confirmation from Generator Utility end	Confirmation from Transmission Utility end
1	CESC as a whole Islanding	Healthy	Healthy
2	BkTPS Islanding Scheme	Healthy	Healthy
3	Tata Power Islanding Scheme Haldia		Healthy
4	Chandrapura TPS Islanding Scheme, DVC	Not in service	
5	Farakka Islanding Scheme, NTPC	Not in service	
6	Bandel Islanding Scheme, WBPDCL	Healthy	Healthy

Members may update.

Deliberation in the meeting:

OCC advised SLDC WB to co-ordinate with TATA power for getting the status of islanding healthiness of Tata Power Islanding Scheme Haldia.

ITEM NO. C.9: Transfer capability determination by the states.

Latest status of State ATC/TTC declared by states during the month of Sept-2021

Sl No	State/Utility	TTC (MW)		RM(MW)		ATC Import (MW)		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	6400	--	128	--	6278	--	Aug-21
2	JUSNL	1421	--	51	--	1370	--	Sep-21
3	DVC	1483	3322	63	49	1420	3273	Sep-21
4	OPTCL	2372	1059	88	62	2284	997	Sep-21
5	WBSETCL	5490	--	400	--	5090	--	Aug-21
6	Sikkim	199	--	2.04	--	196.96	--	Sep-21

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

It is necessary to highlight that the ATC/TTC declaration on website need to be updated in timely manner. It is suggested that along with PDF copies, a tabular format may also kindly be provided so that it can be utilized for preparing ERLDC portal on State ATC/TTC. In addition, ATC/TTC may be declared three months in advance and periodically reviewed based on any shutdown causing leading to any constraint.

Members may update.

Deliberation in the meeting:

Bihar representative submitted that they would update the details for the month of Sept'21 and Oct'21 by next week.

ITEM NO. C.10: Mock Black start exercises in Eastern Region

Mock black start date for financial year 2021-22 is as follows:

Sl. No	Name of Hydro Station	Schedule	Tentative Date	Schedule	Tentative Date
		Test-I		Test-II	
1	U. Kolab	Last week of Oct 2021		Second Week of Feb 2022	
2	Balimela	Second week of Nov 2021		First Week of March 2022	
3	Rengali	Second week of Nov 2021		First 2eek of March 2022	

4	Burla	Second week of Nov 2021		First Week of March 2022	
5	U. Indravati	Last week of Oct 2021		Second Week of Feb 2022	
6	Maithon	Third Week of Nov 2021		First Week of March 2022	
7	TLDP-III	Second week of Nov 2021		Second Week of Feb 2022	
8	TLDP-IV	Third Week of Nov 2021		First Week of March 2022	
9	Subarnarekha	Second week of Nov 2021		Second Week of Feb 2022	
10	Teesta-V	Third Week of Nov 2020		Third Week of March 2022	
11	Chuzachen	Done on 9th April'21		First Week of March 2022	
12	Teesta-III	Third Week of Nov 2021		First Week of March 2022	
13	Jorethang	Third Week of Nov 2021		First Week of March 2022	
14	Tasheding	Second week of Nov 2021		First Week of March 2022	
15	Dikchu	Second week of Nov 2021		Second Week of Feb 2022	

In the 179th OCC meeting, ERLDC submitted that Chuzachen had done the Mock Black Start on 9th April 2021.

In the 180th OCC meeting, ERLDC representative informed that they have not receivedany further update on Mock Black Start.

Odisha representative submitted that they have not started the Mock Black Start due to ongoing Covid-19 Vaccination drive.

Members may update.

Deliberation in the meeting:

SLDC, Jharkhand representative submitted that they would go for Mock Black Start in the 2nd week of August '21. ERLDC representative advised Jharkhand to give prior intimation regarding the Mock Black Start.

SLDC, Odisha representative informed that they would go for Mock Black Start of Balimela in the2nd week of August '21.

ITEM NO. C.11: Submission of Renewable Purchase Obligation (RPO) Data & Nomination.

Ministry of Power (MoP), Govt. of India vide order dated 29.01.2021 (enclosed at **Annexure-C11.1**), notified RPO Trajectory till FY 2021-22, which includes long term trajectory for Hydro Power Obligation (HPO) also. In addition, Para No. (17) of MoP Order dated 29.01.2021, stipulates POSOCO to maintain data related to compliance of RPOs. The matter of monitoring of RPO compliance has taken a high priority and regularly monitored by the MoP and MNRE.

Obligated entities for RPO compliance are Distribution Licensees, Open Access Consumers, Captive Power Plants etc. which are intra-State entities. Further, in order to comply with above MoP order, POSOCO initiated several communications to all the State Nodal Agencies (SNAs) during the month of Feb'21 to Jun'21 and requested to provide the details relevant to compliance of RPO. However, POSOCO is yet to receive the RPO Compliance details at your end.

In order to facilitate compilation of details related to RPO compliance, it is hereby requested to nominate a nodal person from each State Nodal Agencies (SNAs) and advise the concerned to timely (within one month from the end of quarter) provide the details as per **Annexure-C11.2** for FY 2020-21 and quarterly RPO compliance status of Obligated Entities for FY 2021-22 to following nodal persons from POSOCO for RPO compliance monitoring in an effective manner for onward submission of information to MOP and MNRE.

- Shri Manas Das, Chief Manager, ERLDC (Email: manasdas@posoco.in, Mob: 09007070925)
- Shri Kailash Chand Saini, Chief Manager, NLDC (Email: kcsaini@posoco.in, Mob: 08800690951)

States may nominate the Nodal person and submit the relevant data in the prescribed format.

Deliberation in the meeting:

Bihar has already nominated the nodal person regarding this.

*Keeping in view the compilation of details regarding monitoring of RPO compliance in an effective manner, OCC advised each State Nodal Agency (SNA)to nominate a nodal person from their side and also provide the necessary details as per the **Annexure C-11.2** to the nodal persons of POSOCO.*

ITEM NO. C.12: List of Important Elements in ER

In compliance with IEGC 5.2 (c) List of Important Grid Elements of Eastern regional Grid has been prepared and draft version of the same was circulated via mail on 12-May-2021. Constituents were requested to review and give input by 25thMay so that it can be finalized by month end.
Subsequently the list of important elements of ER is finalized, based on comments received. The updated list is available on the ERLDC website and can be directly accessed through the following link:

https://app.erldc.in/Content/Upload/System%20Study/Important%20Elements%20in%20ER/List%20of%20Important%20Element_2021.pdf

In the 180th OCC meeting, ERLDC representative informed that they had received comments from Bihar regarding addition of 03 nos. of 132kV S/s in the list and the same is being updated by them.

He further added that DVC's comments, as received, have also been updated in the list. However, no comments have been received from Odisha, West Bengal & Jharkhand.

Odisha representative informed that they would submit the comments to ERLDC by 30th June'21.

OCC advised the remaining concerned utilities to submit their comments positively by 30th June'21 so that the list can be finalized.

ERLDC may update.

Deliberation in the meeting:

ERLDC representative informed that no further comment has been received in this regard.

The updated list is available on the ERLDC website and can be directly accessed through the following link:

https://app.erldc.in/Content/Upload/System%20Study/Important%20Elements%20in%20ER/List%20of%20Important%20Element_2021.pdf

Odisha representative submitted that would submit the details within 10 days. In response, ERLDC representative mentioned that the details received from Odisha would be incorporated in the next revision.

Further, it was informed that the updated Operating Procedure for Eastern Region- 2021 has been uploaded in their website and the link for direct access is given below:

https://app.erldc.in/Content/Upload/System%20Study/Operating%20Procedure/2021%20-Operating%20Procedure%20of%20Eastern%20Region.pdf

ITEM NO. C.13: Monthly Data on Category-wise consumption of electricity in states.

The data of category-wise consumption of electricity in the states/UTs are being frequently referred to by CEA and Ministry of Power. In this regard, as advised by Member (GO &D), GM division of CEA has advised the following:

- The monthly data of category-wise consumption of electricity in the states/UTs may be discussed in the OCC meeting on regular basis with comparative analysis of the same for corresponding monthly data of previous years.
- In case the utilities have reservations on submitting unaudited data then the same may be mentioned in the data itself that these data are unaudited. In that case the data so received would be used only for the purpose of trend analysis and would not be used in any report of CEA.

In 177th OCC Meeting, OCC advised all SLDCs to take up the issue with their DISCOM(s) and submit the required data on monthly basis to ERPC secretariat.

In the 179th OCC meeting, Odisha informed that they had submitted the data. Jharkhand and DVC submitted that they would update the data after getting it from their commercial team. West Bengal informed that they would submit the status by 24th May 2021.

In the 180th OCC meeting:

WBSETCL: Submitted that the data is related to the Discoms (WBSEDCL) since the data is of LT and HT lines. OCC advised WBSETCL to co-ordinate with the Discoms and submit the data to ERPC at the earliest.

Jharkhand: Informed that they have not yet received the data from Discom and would update the same by last week of this June'2021.

DVC: Informed that their commercial wing has not yet provided the data.

Bihar: Submitted the data for the month of May'21.

Odisha: Informed that up to March'21 they had submitted all the requisite data and for the month of April'21 partial data was submitted. Odisha representative further informed that they are facing problems in gathering the data from the Discoms and requested the forum to instruct the Discoms for complying the same.

Members may update.

Deliberation in the meeting:

Members updated the status as follows:

Bihar: *Submitted the data for the month of May 21 and June 21.*

Odisha: *Submitted that the data for June'21 will be send after getting the same from the Discoms.*

Jharkhand: *Informed that data is yet to be received from Discom.*

DVC: *Informed that details are yet to be received from their commercial department.*

ITEM NO. C.14: Activation of Transient data record facility in the AVR, if available and sharing the information with RLDC whenever required.

Monitoring of response of all dynamic elements of the grid is extremely important for analyzing various events in the grid and validating dynamic models of the elements.

Modern AVR are having transient data recording facility and can record very high-resolution data. Therefore all generating station must activate the facility for understanding the dynamics of the

grid in a much better way. Therefore all generators are requested to submit the following details:

Generator Name	AVR manufacturer	Transient Data recording facility available (Yes/No)	IS the data recording facility activated (Yes/No)

In the 179th OCC meeting, ERLDC submitted that they had received the data from some of the constituents.

ERLDC further suggested that all the generators having the transient data record facility in the AVR should activate the same facility at their end. Also in the upcoming new generators or in the generators where R& M work is going on, possibility of incorporating this feature should be explored.

OCC advised all the concerned utilities to submit the data at the earliest.

Information is yet to be received from following plants

- **Central Sector**
  - Rangit
  - Barh
  - Darlipalli
  - NPGC
  - BRBCL
  - MPTS St- II
- **West Bengal**
  - Kolaghat
  - Sagardighi
  - TLDP-4
  - PPSP
- **Odisha**
  - Hirakud
  - Chiplima
  - Balimela
  - Upper Kolab
  - Indravati
  - Rengali
  - Sterlite
- **Jharkhand**
  - Tenughat
  - Subarnarekah
- **DVC**
  - Bokaro-B
  - DSTPS
  - Mejia-A
  - Waria
  - Raghunathpur
  - Mejia-B
  - Chandrapura
  - Bokaro-A
  - Koderma
  -
- **Bihar**
  - MTPS St- I
  - Barauni TPS

It is further suggested that all generating station must activate the facility where ever available for understanding the dynamics of the grid in a much better way. Data for the same may be shared with ERLDC when need for analysis arises.

In the 180th OCC meeting, ERLDC representative informed that till date no further status in this regard has been received. He further added that they had already informed the concerned generators to activate the transient data recording facility in AVR at their end, if available, and inform to ERLDC.

NTPC Kahalgaon representative informed that the transient data facility in AVR is available at their end but due to shortage of memory they are not in a position to activate the same. He further informed that they would share their views after consulting the concerned department.

OCC advised all the concerned generators to activate the facility at their end, if available, and share the latest status to ERPC and ERLDC at the earliest.

Members may update.

Deliberation in the meeting:

Bihar representative submitted that MTPS St-I doesn't have any AVR recording facility and the details regarding Barauni TPS details would be shared to ERPC & ERLDC with two days.

ERLDC submitted that they had received the details from NPGC and WBPDCL. But information is yet to be received from following plants

1. *Rangit*
2. *Sterlite*
3. *MPL*
4. *Barh*
5. *BRBCL*
6. *Hirakud*
7. *Chiplima*
8. *Balimela*
9. *Upper Kolab*
10. *Indravati*
11. *Rengali*
12. *Tenughat*
13. *Subarnarekha*
14. *Bokaro B*
15. *Andal*
16. *MTPS*
17. *Barauni*
18. *Mejia A*
19. *Waria*
20. *Raghunathpur*
21. *Mejia B*
22. *Chandrapura*
23. *Bokaro A*
24. *Koderma*

OCC advised the all the concerned generators to check for the availability of the said facility and share the details to ERLDC.

PART D: OPERATIONAL PLANNING

ITEM NO. D.1: Anticipated power supply position during August 2021

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of August 2021 were prepared by ERPC Secretariat on the basis of LGBR for 2021-22 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc. is enclosed at **Annexure-D1**.

Members may update.

Deliberation in the meeting:

The updated anticipated power supply position for the month of August' 2021 is placed at ***Annexure D1.***

ITEM NO. D.2: Shutdown proposal of generating units for the month of August' 2021.

Generator unit shutdown schedule for August' 2021 is given in the table.

Proposed Maintenance Schedule of Thermal Generating Units of ER during 2020-21 in the month of August'2021 (as finalised in LGBR meeting for 2020-21)

System	Station	Unit	Capacity (MW)	Period (as per LGBR 2020-21)		No.of Days	Reason
				From	To		
WBPDCL	Kolaghat TPS	6	210	02.08.2021	26.08.2021	25	AOH/BOH
	Bakareswar TPS	4	210	06.08.2021	30.08.2021	25	AOH/BOH
	Sagardighi TPS	2	300	01.08.2021	10.08.2021	10	PG Test
TVNL	Tenughat TPS	2	210	10.08.2021	31.08.2021	22	R&M + OH
OPGC	IB TPS	2	210	01.08.2021	30.08.2021	30	AOH
	IB TPS	4	660	01.08.2021	25.08.2021	25	AOH
CESC	Southern TPS	1	67.5	06.08.2021	20.08.2021	15	BOH
	Southern TPS	2	67.5	22.08.2021	31.08.2021	10	BOH
DPL	DPPS	7	300	01.08.2021	31.08.2021	31	AOH
IPP	JITPL	1	600	01.08.2021	30.09.2021	61	COH
KBUNL	MTPS	3	195	01.07.2021	04.08.2021	35	AOH

Members may update.

Deliberation in the meeting:

The final list of maintenance schedule as approved by OCC is as given below:

Approved Maintenance Schedule of Thermal Generating Units of ER for the month of August'2021 (as approved in 181st OCC)							
System	Station	Unit	Capacity (MW)	Period		No.of Days	Reason
				From	To		
WBPDCL	Bakareswar TPS	4	210	12.08.2021	31.08.2021	20	AOH/BOH
OPGC*	IB TPS	3	660	Planned in August'21 for 25 days		25	AOH
KBUNL	MTPS	3	195	21.08.2021	24.09.2021	35	AOH + Combustion Modification work
APNRL**	APNRL	1	540	14.08.2021	30.09.2021	48	AOH

*date would be intimated soon.
**subject to consent from the beneficiaries.

ITEM NO. D.3: Major Generating Units/Transmission Element outages/shutdown in ER Grid (as on 11.06.2021)

a) Thermal Generating Stations outage report:

Sl. No	Station	State	Agency	Unit No.	Capacity in Mw	Reason(s)	Outage Date
1	FSTPP	WEST BENGAL	NTPC	1	200	ANNUAL OVERHAULING.	11-Jul-2021
2	KHSTPP	BIHAR	NTPC	3	210	ANNUAL OVERHAULING	02-Jul-2021
3	IB.TPS	ODISHA	OPGC	1	210	ANNUAL OVERHAULING	21-Jun-2021
4	INDRAVATI	ODISHA	OHPC	1	150	ANNUAL MAINTENANCE	16-Jun-2021
5	KOLAGHAT	WEST BENGAL	WBPDCL	1	210	ESP R & M	07-Jun-2018
6	KOLAGHAT	WEST BENGAL	WBPDCL	6	210	POOR COAL STOCK	07-Jul-2021
7	SAGARDIGHI	WEST BENGAL	WBPDCL	4	500	ANNUAL OVERHAULING	29-Jun-2021
8	NABINAGAR	BIHAR	NPGC	1	660	OIL LEAKAGE IN CONTROL VALVE	12-Jul-2021
9	BANDEL TPS	WEST BENGAL	WBPDCL	1	82.5	FURNACE WALL TUBE LEAKAGE	20-Apr-2021
10	BARAUNI TPS	BIHAR	BSPHCL	6	110	ABNORMAL TSI PARAMETER	17-Mar-2021
11	BARAUNI TPS	BIHAR	BSPHCL	9	250	PROBLEM IN GT	17-Jun-2021
12	BOKARO'B'	DVC	DVC	3	210	INITAILLY OUT DUE TO ASH PONDAGE PROBLEM UPTO 31/12/21. LATER OUT DUE TO POLLUTION CLERANCE ISSUE	21-Oct-2020
13	HEL HIRANMAYEE	WEST BENGAL	WBPDCL	2	150	HEAVY STEAM LEAKAGE FROM IP-LP TURBINE PARTING PLATE.	06-Jul-2021
14	KOLAGHAT	WEST BENGAL	WBPDCL	2	210	ESP & ASH HANDLING & R & M	26-Jun-2021
15	MEJIA TPS	DVC	DVC	2	210	STATOR EARTH FAULT	13-Jul-2021

16	MUZAFFARPUR TPS	BIHAR	BSPHCL	1	110	BOILER TUBE LEAKAGE	08-Jul-2021
17	MUZAFFARPUR TPS	BIHAR	BSPHCL	2	110	EXCITATION TRANSFORMER FAILURE.	03-Jul-2021
18	RTPS	DVC	DVC	1	600	SCANNER FAN AIR PRESSURE LOW	13-Jul-2021
19	TENUGHAT	JHARKHAND	TVNL	1	210	BTL	08-Jul-2021
20	WARIA TPS	DVC	DVC	4	210	FLAME FAILURE	06-Jul-2021

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 may to update the expected date of revival of the units.

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

S.No	Station	State	Agency	Unit No.	Capacity in Mw	Reason(s)	Outage Date
1	DSTPS	DVC	DVC	1	500	RSD / LOW SYSTEM DEMAND	02-Jul-2021
2	MEJIA TPS	DVC	DVC	1	210	INITIALLY OUT ON FLAME FAILURE LATER ON PUT ON LOW SYSTEM DEMAND FROM 09:30HRS	14-Jun-2021

c) Hydro Unit Outage Report:

Sl. No.	Station	State	Agency	Unit No	Capacity	Reason(s)	Outage
1	BALIMELA HPS	ODISHA	OHPC	1	60	R & M WORK	05-Aug-2016
2	BALIMELA HPS	ODISHA	OHPC	2	60	R & M WORK	20-Nov-2017
3	BURLA HPS/HIRAKUDI	ODISHA	OHPC	5	37.5	R & M WORK	25-Oct-2016
4	BURLA HPS/HIRAKUDI	ODISHA	OHPC	6	37.5	R & M WORK	16-Oct-2015
5	BURLA HPS/HIRAKUDI	ODISHA	OHPC	7	37.5	ANNUAL MAINTENANCE	20-Jan-2020
6	BALIMELA HPS	ODISHA	OHPC	5	60	STATOR EARTH FAULT	13-Dec-2020
7	RENGALI HPS	ODISHA	OHPC	4	50	OIL LEAKAGE IN UPPER GUIDE VANE	20-Jun-2021
8	U.KOLAB	ODISHA	OHPC	2	80	TGB PAD VIBRATION HIGH	19-Mar-2021
9	INDRAVATI	ODISHA	OHPC	1	150	ANNUAL MAINTENANCE	16-Jun-2021

It is seen that about 572.5 MW hydro capacities in Odisha is under forced outage / planned outage and therefore not available for providing the much needed peaking support during evening peak.

SLDC / OHPC may please indicate restoration plan of the units.

d) Long outage report of transmission lines:

SL NO	Transmission Element / ICT	Agency	Outage DATE	Reasons for Outage
1.	400 KV IBEUL JHARSUGUDA D/C	IBEUL	29-04-2018	TOWER COLLAPSE AT LOC 44,45
2.	220/132 KV 100 MVA ICT I AT LALMATIA	FSTPP/JUSNL	22-01-2019	FAILURE OF HV SIDE BREAKER
3.	220 KV PANDIABILI - SAMANGARA D/C	OPTCL	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
4.	220kV Barauni-Hajipur Ckt-1	BSPTCL	28-09-2019	TOWER COLLAPSE AT LOCATION 38 & 39. CKT-2 IS ON ERS SINCE 13.01.2020.
5.	220/132 KV 100 MVA ICT 3 at Chandil	JUSNL	30-04-2020	ICT BURST AND DAMAGED AFTER FIRE REPORTED
6.	220KV/132 KV 100 MVA ICT 4 AT RANGPO	PGCIL	08-04-2021	HAND TRIPPED AFTER TRIPPING OF ALL 400/220 ICTS AT RANGPO ON 8.4.21 AFTER DISTURBANCE AND THERAFTER DEVELOPED RELAY RESET PROBLEM
7.	400KV/220KV 315 MVA ICT 2 AT Meeramandali	OPTCL	21-02-2021	FIRE HAZARD
8.	400KV/220KV 315 MVA ICT 4 AT JEERAT	WBSETCL	09-04-2021	TRIPPED ON DIFFERENTIAL AND PRD PROTECTION PROTECTION OPTD
9.	220 KV GODDA-LALMATIA D/C	JUSNL	21-04-2021	TOWER COLLAPSED AT LOC. NO. 4
10.	220KV-FSTPP-LALMATIA-1	JUSNL	21-04-2021	THREE TOWER COLLAPSED NEAR LALMATIA
11.	400KV-BINAGURI-TALA-1	PGCIL	04-06-2021	BINAGURI: B-N, FC- 2.035 KA, FD- 174.7 KM; TALA: B-N, FC- 1.12 KA, FD- 85.4 KM; LATER TAKEN EMERGENCY S/D ON 07-06-21 10:07HRS TO ATTEND BURNT MARKS OBSERVED IN THE XLPE CABLE TERMINATIONS
12.	400KV-PATNA-KISHANGANJ-2	PGCIL	17-06-2021	1. FOR TERMINATION OF LILO OF 400 KV PATNA-KISAHNGANJ LINE AT LOOP IN AND LOOP OUT POINT 2. DIVERSION OF EXSITING LINE TO NEW FOUNDATION,ERECTION,AND STRINGNING NEAR KANKAI REVER UPTO 30/06/21
13.	400KV-ALIPURDUAR (PG)-PUNATSANGCHUN-2	PGCIL /Bhutan	04-07-2020	VOLTAGE REGULATION
14.	220KV-NEW MELLI-TASHIDING-1	THEP	25-06-2021	CONDUCTOR SNAP AT TOWER NO 22
15.	765KV-ANGUL-JHARSUGUDA-3	PGCIL	04-07-2021	VOLTAGE REGULATION
16.	132KV RANGPO-GANGTOK-1	SIKKIM	09-07-2021	Reconditioning/Retrofitting of damaged Tower No. 79 of 132KV Chuzachen_Phongla Transmission line at Samardung
17.	132KV RANGPO-MELLI-1	SIKKIM	09-07-2021	

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. (Reported as per Clause 5.2(e) of IEGC)

Deliberation in the meeting:

OCC advised all the utilities to share the updated status, if any, to ERPC & ERLDC.

ITEM NO. D.4: Commissioning of new units and transmission elements in Eastern Grid in the month of June-2021

The details of new units/transmission elements commissioned in the month of June -2021 based on the inputs received from beneficiaries:

Monthly commissioning List of Transmission element and generators: June 2021					
SL NO	**Element Name**	**Owner**	**Charging Date**	**Charging Time**	**Remarks**
1	400kV JEERAT - SAGARDIGHI- 2	PGCIL	21/06/21	20:27	LILO of 400 kV Subhasgram - Sagardighi S/C at Jeerat Substation
2	400kV JEERAT - SUBHASGRAM- 2	PGCIL	20/06/21	21:28	
3	132kV SITAMARHI - RUNNISAIDPUR- 2	BSPTCL	17/06/21	13:52	Bay at Sitamarhi end was charged on 11.04.21.
4	132kV SITAMARHI - RUNNISAIDPUR- 1	BSPTCL	17/06/21	13:50	Bay at Sitamarhi end was charged on 11.04.21.
5	400kV BAHRAMPUR - BHERAMERA- 3	PGCIL	14/06/21	18:02	Power flow of the line was 280 MW.
6	220kV MAIN BAY OF JAYNAGAR -3 AT JEYPORE	OPTCL	25/06/21	16:53	OPTCL owned bay at PGCIL Jeypore SS
7	220kV MAIN BAY OF JAYNAGAR -4 AT JEYPORE	OPTCL	25/06/21	16:58	OPTCL owned bay at PGCIL Jeypore SS
8	400kV MAIN BAY OF 315MVA ICT-III AT SUBHASGRAM(PG)	PGCIL	27/06/21	16:45	Bay Upgradation Works
9	400kV MAIN BAY OF 315MVA ICT-IV AT SUBHASGRAM(PG)	PGCIL	27/06/21	16:35	Bay Upgradation Works
10	400kV ALIPURDUAR - JIGMELLING 1	PGCIL	22/06/21	12:19	Link is direct circuit besides the alternative circuit through Punatsangchhu.
11	400kV ALIPURDUAR - JIGMELLING 2	PGCIL	18/06/21	18:06	Link is direct circuit besides the alternative circuit through Punatsangchhu.

Members may update.

Deliberation in the meeting:

OCC advised all the concerned utilities to submit the necessary details regarding the commissioning of any new intra-state elements to ERPC and ERLDC.

ITEM NO. D.5: UFR operation during the month of May 2021

Frequency profile for the month as follows:

Month	Max (Date/Time)	Min (Date/Time)	Less IEGC Band (%)	Within IEGC Band (%)	More IEGC Band (%)
June, 2021	50.27 Hz, 04-06-2021 18:03 Hrs.	49.64 Hz , 03-06-2021 19:48Hrs& 24-06-2021 ,14:22 Hrs	6.10	74.53	19.37

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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Annexure-B6

ଓଡ଼ିଶା ବିଦ୍ୟୁତ ଶକ୍ତି ସଂଚାରଣ ନିଗମ ଲିଃ.

ODISHA POWER TRANSMISSION CORPORATION LIMITED

(A Government of Odisha Undertaking)

Regd.Office: Janpath: Bhubaneswar

CORPORATE IDENTITY NUMBER (CIN) U40102OR2004GC007553

Telephone: 0674-2541168 Fax:

Connect us Facebook/optcl.odisha - Twitter/optcl_odisha

No. : Dir (O)-Load flow Study-21/2021-80(3) Date : 29.06.2021

To

The Member Secretary,
Eastern Regional Power Committee,
14 Golf Club Road, Tollygung, Kolkatta-700033.

Sub:- Transmission Planning for Intrastate constraints in Odisha System.

Ref:- Your Letter No. ERPC/OPERATION/2021/264 dt. 25.05.2021.

Sir,

Inviting reference to the above OPTCL has conducted an in-house system study for Long Term planning to mitigate the constraints at power evacuation from Budhipadar Grid substation. The brief report on transmission planning for intrastate constraints in Odisha system in Budhipadar command area is enclosed for kind reference.

Yours faithfully,

29/6/2021

Director (Operation)

Encl: As above.

C.C.

1. Director (SLDC) for information.
2. PS to MD OPTCL for kind information of MD.

BRIEF REPORT ON TRANSMISSION PLANNING FOR INTRASTATE CONSTRAINTS IN ODISHA SYSTEM

System study has been conducted to see the power flow in transmission lines in Budhipadar and Tarkera command area during the steady state and in contingency conditions.

Assumptions.

Vedanta export has been shown as 150 MW/ckt & 90 mw/ckt.

Bhushan drawl has been taken as 90 MW.

RSP drawl has been taken as 100 MW.

The flows are tabulated below.

Condition	Bisra-Tarkera	Budhipadar-Tarkera	Vedanta-Budhipadar	Budhipadar-Lapanga	BudhipadarAuto	Bhushan drawl
Base Case	106MW/Ckt	74 MW/Ckt	150 MW/Ckt	155 MW/Ckt	106 MW each	90 MW
Bisra-Tarkera S/C out	188 MW	78 MW/Ckt	150 MW/Ckt	151.8 MW/Ckt	106 MW each	90 MW
Budhipadar-Tarkera S/C out	125 MW/Ckt	90 MW	150 MW/Ckt	171 MW/Ckt	110 MW each	90 MW
Vedanta-Budhipadar S/C out	106 MW/Ckt	73 MW/Ckt	296 MW	155 MW/Ckt	106 MW each	90 MW
Outage of Tarkera-Bonei & Tarkera-Chandiposh	81 MW/Ckt	66.8 MW/Ckt	150 MW/Ckt	160 MW/Ckt	106 MW each	90 MW
Vedanta export 180 MW	117 MW/Ckt	62 MW/Ckt	90 MW/Ckt	130 MW/Ckt	102 Mw each	90 MW
Vedant export 180 MW+Tarkera-Bonei & Tarkera-Chandiposh out	94 MW/Ckt	56 MW/Ckt	90 MW/Ckt	135 MW/Ckt	102 MW each	90 MW
Vedanta export 180 MW+Tarkera-Bonei& Tarkera-Chandiposh	55 MW/Ckt	96 MW/Ckt	90 MW/Ckt	0	145 MW each	90 MW

out+Budhipadar-Lapanga D/C out						
Vedanta-Budhipadar D/C out	135 MW/Ckt	46 MW/Ckt	0	92 MW/Ckt	96 MW each	90 MW
Vedanta-Budhipadar D/C out & Bisra-Tarkera 4 ckts	71.5 MW	42 MW/ckt	0	95 MW/ckt	96 MW each	90 MW

Conclusion

With Unified Vedanta i.e. getting disconnected from Budhipadar and connected through ICT to 400 kV Sterlite,the Bisra-Tarkera 220 kV DC line is loaded 135 MW each thus violating the n-1 criteria.

When Vedanta export is limited to 180 MW,the Budhipadar-Lapanga & Bisra-Tarkera line loading violates n-1 criteria.

As a short term measure when the Bisra-Tarkera Ckt drawl increases beyond thermal limit, Barkote,Bonei and Chandiposh may be disconnected from Tarkera end allowing it to draw from Rengali end thus relieving Bisra-Tarkera line loading.

At present Budhipadar is having one 160 MVA transformer. The second Auto transformer of 160 MVA will be commissioned by the end of Aug'2021.

In a futuristic scenario i.e. during 2022-23 condition, the Bisra-Tarkera DC line is loaded 152 MW each. Hence another DC line from Bisra-Tarkera will mitigate the loading condition.

Vedanta will be allowed to be disconnected from Budhipadar thus facilitating unification only when Bisra-Tarkera will be augmented with another DC line. Loading of all the lines emanating from Budhipadar and Tarkera will be n-1 compliant. The preliminary survey for another two Ckts from Bisra to Tarkera has started.

Annexure-B7

POWER SYSTEM DEVELOPMENT FUND

Status of the Projects in Eastern Region

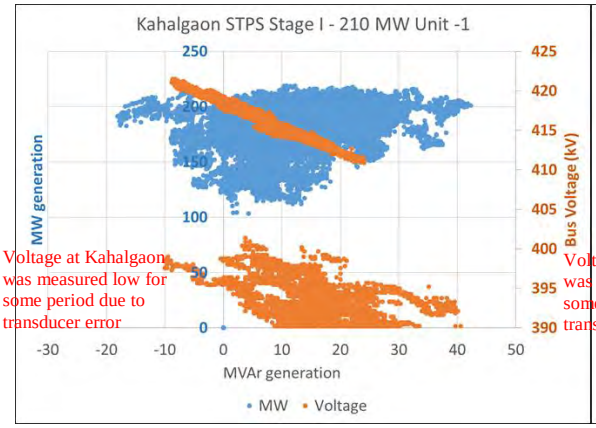
Sl No	State	Entity	Name of the scheme	Grant Approved	Grant sanctioned on	1st Installment grant released on	Completion Schedule	Completion schedule w.r.t date of 1st instalment	Grant aviled so far	Under process of release	Total awards amount of placed of till date	Latest status
1	**Bihar**	**BSPTCL**	Renovation and Upgradation of protection system of substations. (18)	64.22	42135	42506	24	43236	56.04		69.195	90% grant availed on award cost.
2			Installation of Capacitor bank in 20 Nos of Grid Sub Station. (74)	18.882	42618	43550	24	44281	16.99		21.55	
			Total	**83.10**					**73.03**		**90.745**	
5	**Jharkhand**	**JUSNL**	Renovation & Upradation of protection system of Jharkhnad. (161)	138.13	15-Nov-17	28-Mar-19	16	28-Jul-20	114.68	1.01	145.674	90% grant availed on award cost. Project closure is expected by Q-2 of 2021-22.
6			Reliable Communication & data acquisition system upto 132kV Substations ER. (177)	22.36	24-May-19		24					Price bid has been opened. Tender on awarding stage.
			Total	**160.49**					**114.68**		**145.674**	
7	**Odisha**	**OPTCL**	Renovation and Upgradation of protection system of substaions. (08)	162.50	11-May-15	22-Mar-16	24	22-Mar-18	46.04		63.31	Project Completed on Dec-20. Request for release of final 10 % fund has been placed.
8			Implementation of OPGW based reliable communication at 132 kv and above substations. (128)	25.61	15-Nov-17	29-Mar-19	36	29-Mar-22	23.04		51.22	90% grant availed on award cost.
9			Installation of 125 MVAR Bus Reactor along with construction of associated by each at 400kV Grid S/S of Mendhasal, Meramundali & New Duburi for VAR control & stabilisation of system voltage. (179)	27.23	27-Jul-18	1-Apr-19	18	1-Oct-20	8.17		8.166	30% grant availed
10			Implementation of Automatic Demand Management System (ADMS) in SLDC, Odisha. (196)	2.93	24-May-19	19-Feb-20	10	19-Dec-20	0.29		0.29	10% grant availed
11			Protection Upgradation and installation os Substation Automatic System (SAS) for seven nos of 220/132/33kV Substations (Balasore, Bidanasi, Budhipadar, Katapali, Narendrapur, New-Bolangir & Paradeep). (209)	36.63	24-May-19	13-Feb-20	18	13-Aug-21	8.87		8.87	30% grant availed
12		**OHPCL**	Renovation and Upgradation of protection and control system of OHPC. (109)	22.35	22-May-17	25-May-18	24	25-May-20	14.94		21.25	90% grant availed on award cost.
			Total	**277.25**					**101.35**		**153.106**	
14	**West Bengal**	**WBSETCL**	Installation of switchable reactor & shunt capacitor for voltage improvement. (88)	43.37	22-May-17	22-Jun-18	19	22-Jan-20	33.07		40.83	90% grant availed on award cost. Will get completed by Oct'21
15			Renovation & Modernisation of Transmission System. (87)	70.13	22-May-17	25-Jun-18	25	25-Jul-20	63.12		96.44	90% grant availed on award cost. Will get completed by Mar'22
16			Installation of Bus Reactors at different 400kV Substation within the state of West Bengal for reactive power management of the Grid. (210)	71.74	24-May-19	23-Oct-19	19	23-May-21	39.3		45.62	30% grant availed on award cost. 04 Nos. of Reactors will be commissioned by December 2021. LoA of the 5th Reactor is yet to be placed.
17			Project for establishment of reliable communication and data acquisition at different substation at WBSWTCL. (222)	31.19	24-May-19	23-Oct-19	25	23-Nov-21	3.12			The tender has been been cancelled for OPGW. Re-tendering has to be done.
18			Implementation of Integated system for Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST) system in West Bengal. (197)	10.08	43910		12					10% grant not yet requested
19		**WBPDCL**	Renovation and Modernization of 220/ 132 kV STPS switch yard and implementation of Substaion Automation System. (72)	23.48	5-Sep-16	18-May-17	18	18-Nov-18	21.13		32.09	Target date for completion of project is Sept.'21 subject to availability of S/D & Covid scenario. Request for release for final 10% grant has been placed.
21			Renovation and Modernization of switchyard and related protection system of different power stations (BTPS, BKTPS and KTPS) of WBPDCL (155)	45.16	27-Jul-18	27-Mar-19	12	27-Mar-20	34.52		41.68	Target date for completion of project is Oct'21, subject to availability of S/D & Covid scenario. 90% grant availed on award cost.
			Total	**295.15**					**194.26**		**256.661**	

Annexure-B7

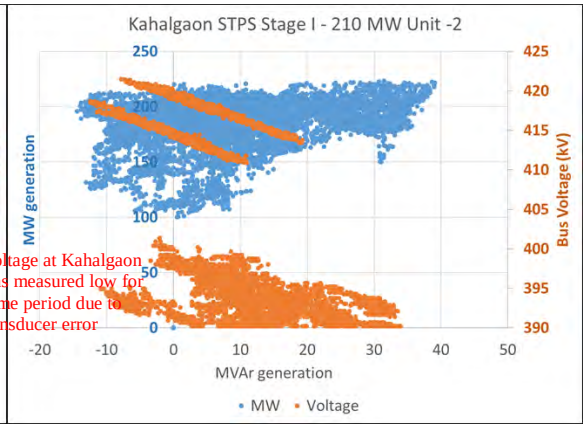
POWER SYSTEM DEVELOPMENT FUND												
Status of the Projects in Eastern Region												
Sl No	**State**	**Entity**	**Name of the scheme**	**Grant Approved**	**Grant sanctioned on**	**1st Installment grant released on**	**Completion Schedule**	**Completion schedule w.r.t date of 1st instalment**	**Grant aviled so far**	**Under process of release**	**Total awards amount of placed of till date**	**Latest status**
22	**DVC**	**DVC**	Renovation and Upgradation of the protection and control system of Ramgarh Sub Station. (81)	25.96	2-Jan-17	31-May-17	24	31-May-19	22.95	2.57	28.603	90% grant availed on award cost.
23			Renovation and Modernization of control and protection system and replecement of equipment at Parulia, Durgapur, Kalyanewari, Giridhi Jamsedpur, Barjora, Burnpur, Dhanbad and Bundwan substation. (106)	140.50	16-May-17	14-Dec-17	24	14-Dec-19	102.43	0.98	127.684	
			Total	**166.46**					**125.38**		**156.287**	
24	**Sikkim**	**ENPD, Sikkim**	Drawing of optical ground wire (OPGW) cables on existing 132kV & 66kV transmission lines and integration of leftover substations with State Load Despatch Centre, Sikkim. (173)	10.00	24-May-19		18		3.00		20	30% grant availed on award cost
				10.00					**3.00**		**20.00**	
26	**ERPC**	**ERPC**	Creation and Maintenance of web based protection database management. (67)	20.00	17-Mar-16	28-Jun-16	18	28-Dec-17	14.83		16.48	Project Completed
27			Study Programme on power trading at NORD POOL Academy for Power System Engineers of Eastern Region. (122)	5.46	27-Jul-18	27-Mar-19	13	27-Apr-20	4.61		5.37	
28			Traning Program for Power system Engineers of various constituents of Eastern Region. (117)	0.61	27-Jul-18	11-Apr-19	24	11-Apr-21	0.54		0.60888	90% grant availed on award cost.
			Total	**26.07**					**19.98**		**22.45888**	
			GrandTotal	**1,018.53**					**631.68**		**844.93**	

Annexure-B9

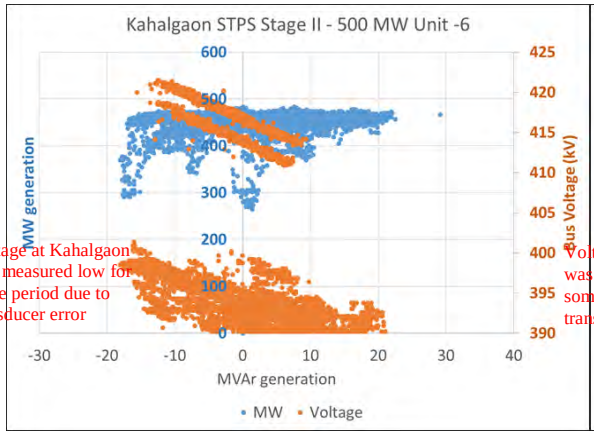
MVAr injection/absorption by generating units with inadequate reactive power support during 01st July to 12th July 2021



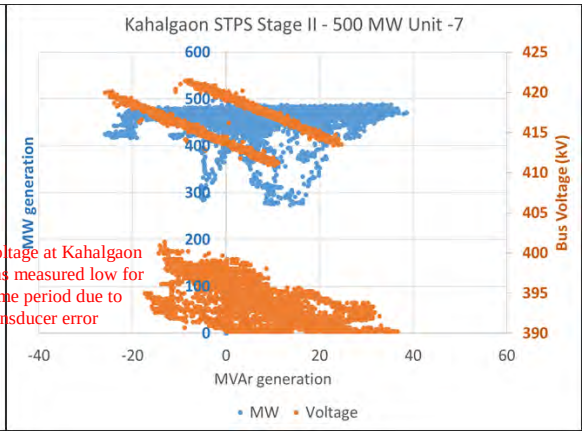
Voltage at Kahalgaon was measured low for some period due to transducer error



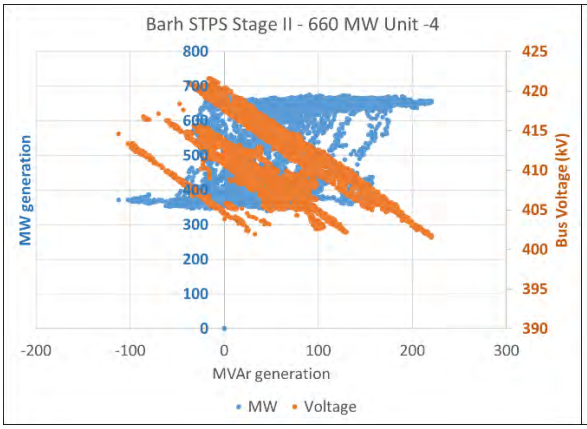
Voltage at Kahalgaon was measured low for some period due to transducer error

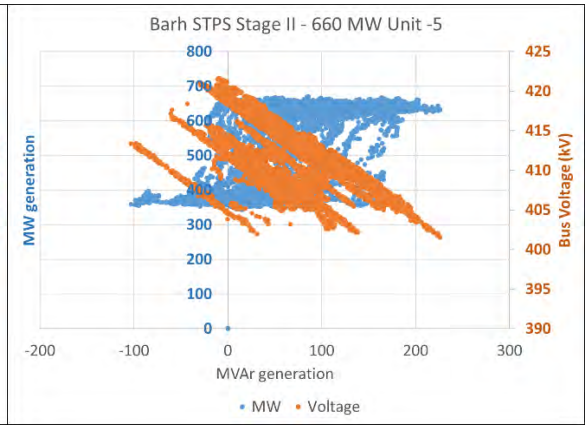


Voltage at Kahalgaon was measured low for some period due to transducer error

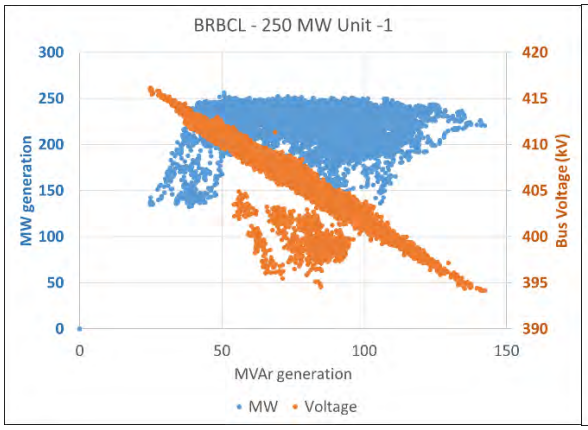


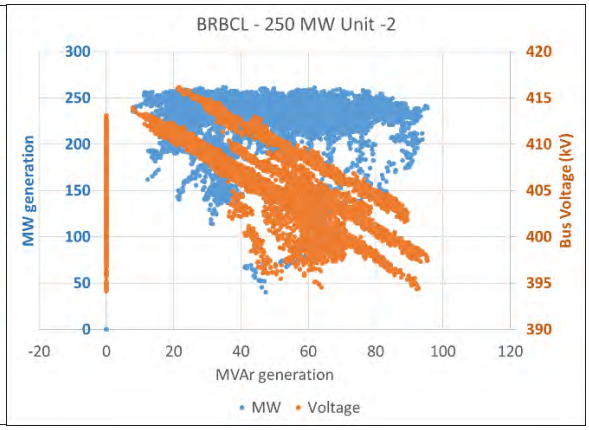
Voltage at Kahalgaon was measured low for some period due to transducer error

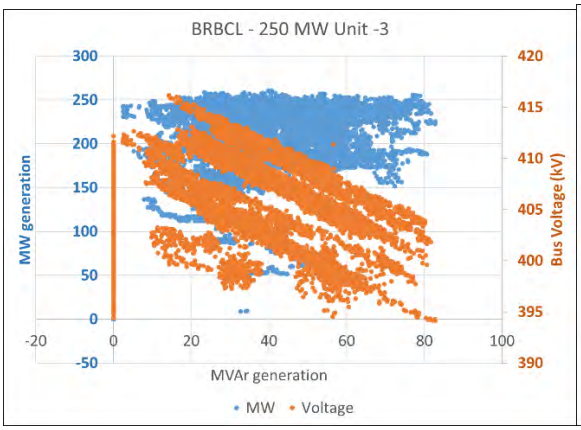


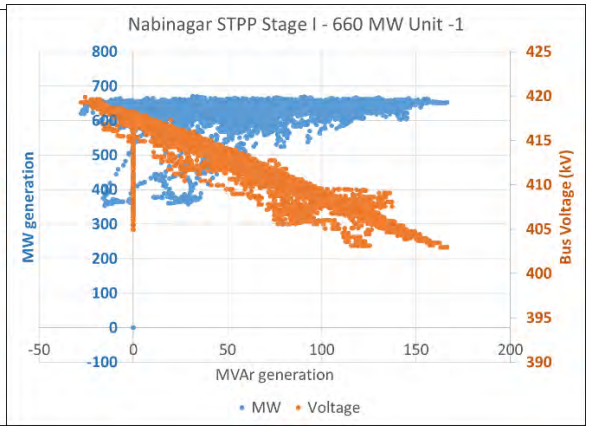


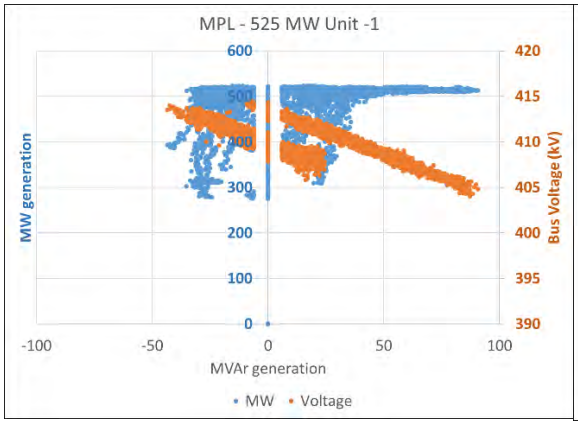
Annexure-B9

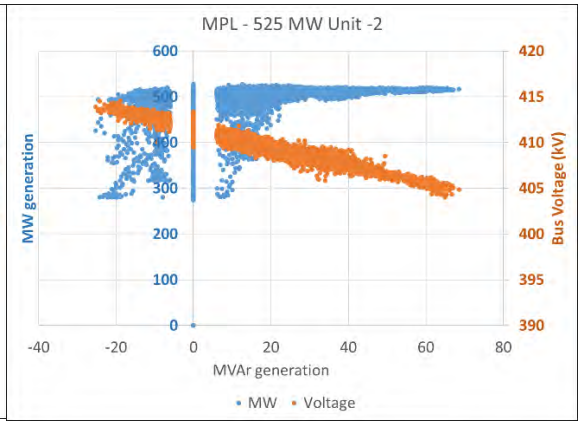

BRBCL - 250 MW Unit -1
MW generation
Bus Voltage (kV)
MVAr generation
MW
Voltage


BRBCL - 250 MW Unit -2
MW generation
Bus Voltage (kV)
MVAr generation
MW
Voltage

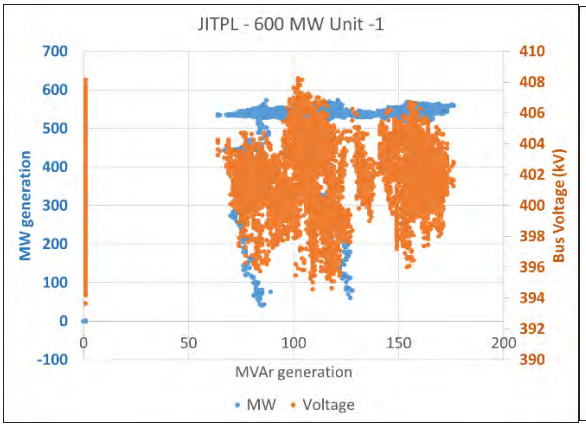

BRBCL - 250 MW Unit -3
MW generation
Bus Voltage (kV)
MVAr generation
MW
Voltage

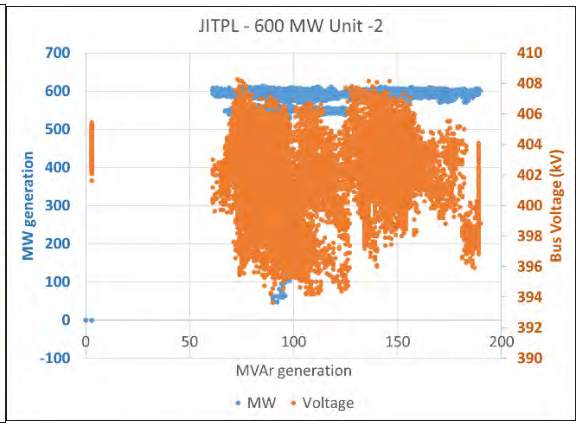

Nabinagar STPP Stage I - 660 MW Unit -1
MW generation
Bus Voltage (kV)
MVAr generation
MW
Voltage


MPL - 525 MW Unit -1
MW generation
Bus Voltage (kV)
MVAr generation
MW
Voltage


MPL - 525 MW Unit -2
MW generation
Bus Voltage (kV)
MVAr generation
MW
Voltage

Annexure-B9


JITPL - 600 MW Unit -1
MW generation
Bus Voltage (kV)
MVAr generation
MW
Voltage


JITPL - 600 MW Unit -2
MW generation
Bus Voltage (kV)
MVAr generation
MW
Voltage

Annexure – 3.1

Statement of Energy Meter Reading at Chhukha & Birpara End from June 10 to July 15, 2021 for 220kV CB Feeder No. 1

Date	Chhukha End Energy Recorded by		Percentage Error	Birpara End Energy Recorded by		Percentage Error
	Main Meter (MU)	Check Meter (MU)		Main Meter (MU)	Check Meter (MU)	
10-06-2021	1.7360	1.733400	0.150%	1.709760	1.70928	0.02807%
11-06-2021	1.6440	1.643760	0.015%	1.616640	1.616640	0.00%
12.06.2021	2.1980	2.195160	0.129%	2.159520	2.15888	0.02964%
13.06.2021	2.3010	2.306640	-0.245%	2.276960	2.26672	0.44972%
14.06.2021	2.2740	2.273040	0.042%	2.216640	2.25472	-1.71792%
15.06.2021	2.2740	2.275080	-0.047%	2.236480	2.22656	0.44355%
16.06.2021	2.2690	2.268480	0.023%	2.213120	2.22256	-0.42655%
17.06.2021	2.6000	2.593920	0.234%	2.515520	2.58464	-2.74774%
18.06.2021	2.7120	2.712240	-0.009%	2.088000	2.61840	-25.40230%
19.06.2021	2.6430	2.645280	-0.086%	2.209600	2.59920	-17.63215%
20.06.2021	2.6080	2.605680	0.089%	3.186720	2.55264	19.89757%
21.06.2021	2.7110	2.715960	-0.183%	1.715200	2.66160	-55.17724%
22.06.2021	2.4970	2.497560	-0.022%	1.739200	0.86720	50.13799%
23.06.2021	2.4790	2.478000	0.040%	1.536160	4.03040	-162.36850%
24.06.2021	2.3170	2.316840	0.007%	1.291200	2.28016	-76.59232%
25.06.2021	2.3780	2.371200	0.286%	2.192480	2.33136	-6.33438%
26.06.2021	2.3870	2.388960	-0.082%	2.343040	2.33360	0.40290%
27.06.2021	2.3310	2.330160	0.036%	3.816320	2.31040	39.46000%

28.06.2021	2.3100	2.310000	0.000%	2.076160	2.25840	-8.77774%
29.06.2021	2.0710	2.075640	-0.224%	1.822080	2.05344	-12.69758%
30.06.2021	2.4910	2.489520	0.059%	1.721120	2.42560	-40.93149%
01.07.2021	2.5100	2.510880	-0.035%	0.642720	2.46688	-283.81877%
02.07.2021	2.5720	2.572920	-0.036%	2.510080	2.50800	0.08287%
03.07.2021	2.4840	2.477880	0.246%	2.430400	2.42752	0.11850%
04.07.2021	2.4930	2.493120	-0.005%	2.424960	2.42176	0.13196%
05.07.2021	2.4650	2.464200	0.032%	2.424320	2.42832	-0.16499%
06.07.2021	2.3830	2.384280	-0.054%	2.331840	2.32720	0.19898%
07.07.2021	2.4780	2.481120	-0.126%	2.331840	2.32720	0.19898%
08.07.2021	2.4780	2.481120	-0.126%	2.445760	2.44608	-0.01308%
09.07.2021	2.6240	2.623440	0.021%	2.589760	2.58992	-0.00618%
10.07.2021	2.5360	2.534640	0.054%	2.468640	2.47200	-0.13611%
11.07.2021	2.5320	2.526600	0.213%	2.500640	2.49760	0.12157%
12.07.2021	2.5460	2.545800	0.008%	2.481600	2.48336	-0.07092%
13.07.2021	2.5680	2.567880	0.005%	2.522240	2.52112	0.04440%
14.07.2021	2.5530	2.552880	0.005%	2.520160	2.52080	-0.02540%
15.07.2021	2.5340	2.538360	-0.172%	2.486880	2.48752	-0.02574%

Annexure – 3.2

Statement of Energy Meter Reading at Chhukha&Birpara End from June 10 to July 15, 2021 for 220kV CB Feeder No. 2

Date	Chhukha End Energy Recorded by		Percentage Error	Birpara End Energy Recorded by		Percentage Error
	Main Meter (MU)	Check Meter (MU)		Main Meter (MU)	Check Meter (MU)	
10-06-2021	1.7340	1.731600	0.138%	1.701920	1.70448	-0.15042%
11-06-2021	1.6420	1.641840	0.010%	1.609600	1.61264	-0.18887%
12.06.2021	2.1950	2.191680	0.151%	2.150880	2.15456	-0.17109%
13.06.2021	2.3040	2.309160	-0.224%	2.269280	2.26128	0.35253%
14.06.2021	2.2700	2.270280	-0.012%	2.213760	2.24784	-1.53946%
15.06.2021	2.2720	2.272200	-0.009%	2.234720	2.22064	0.63006%
16.06.2021	2.2650	2.265240	-0.011%	2.213280	2.21630	-0.13663%
17.06.2021	2.5960	2.590560	0.210%	2.539360	2.54496	-0.22053%
18.06.2021	2.7090	2.708640	0.013%	2.159360	2.64208	-22.35477%
19.06.2021	2.6400	2.640000	0.000%	2.265440	2.58944	-14.30186%
20.06.2021	2.6030	2.602440	0.022%	3.352480	2.54448	24.10156%
21.06.2021	2.0320	2.038440	-0.317%	1.765920	1.99120	-12.75709%
22.06.2021	2.4940	2.493840	0.006%	1.965920	2.45712	-24.98576%
23.06.2021	2.4750	2.493840	-0.761%	1.834880	2.42176	-31.98465%
24.06.2021	2.3140	2.493840	-7.772%	1.277600	2.27136	-77.78334%
25.06.2021	2.3740	2.493840	-5.048%	2.539200	2.32336	8.50032%
26.06.2021	2.3840	2.493840	-4.607%	2.772160	2.32528	16.12028%
27.06.2021	2.3280	2.326200	0.077%	3.911200	2.30352	41.10452%

28.06.2021	2.3070	2.307000	0.00%	2.236160	2.24960	-0.60103%
29.06.2021	2.0680	2.074680	-0.323%	1.682880	2.04576	-21.56303%
30.06.2021	2.4860	2.484840	0.047%	1.757280	2.42144	-37.79477%
01.07.2021	2.5060	2.505960	0.002%	3.486240	2.47328	29.05595%
02.07.2021	2.5680	2.568360	-0.014%	2.510720	2.51504	-0.17206%
03.07.2021	2.4790	2.473440	0.224%	2.429760	2.43200	-0.09219%
04.07.2021	2.4880	2.488680	-0.027%	2.429280	2.42752	0.07245%
05.07.2021	2.4620	2.459160	0.115%	2.412320	2.42448	-0.50408%
06.07.2021	2.4530	2.456040	-0.124%	2.388640	2.38768	0.04019%
07.07.2021	2.4730	2.476440	-0.139%	2.427520	2.43808	-0.43501%
08.07.2021	2.6190	2.618640	0.014%	2.572800	2.57200	0.03109%
09.07.2021	2.4200	2.421000	-0.041%	2.364000	2.36864	-0.19628%
10.07.2021	2.5310	2.530320	0.027%	2.468640	2.47200	-0.13611%
11.07.2021	2.5280	2.522400	0.222%	2.483200	2.48480	-0.06443%
12.07.2021	2.5420	2.541600	0.016%	2.463520	2.47024	-0.27278%
13.07.2021	2.5630	2.561400	0.062%	2.506080	2.50864	-0.10215%
14.07.2021	2.5470	2.549760	-0.108%	2.504960	2.50944	-0.17885%
15.07.2021	2.5310	2.534280	-0.130%	2.470080	2.47536	-0.21376%

220 kV Feeder 1

Chhukha End Energy Meter Details:

Main Meter: Sl. No. WB U03117, Make: Secure

Check Meter: Sl. No. NP-2529 A, Make: Secure

Birpara End Energy Meter Details:

Main Meter: Sl. No. NP-6465A, Make: L&T

Check Meter: Sl. No. LT-0328-A, Make: L&T

220 kV Feeder 2

Chhukha End Energy Meter Details:

Main Meter: Sl. No. WB U03116, Make: Secure

Check Meter: Sl. No. NP-2520 A, Make: Secure

Birpara End Energy Meter Details:

Main Meter: Sl. No. ER-1106A, Make: Genus

Check Meter: Sl. No. LT-0327-A, Make: L&T make

Annexure-C1

Power System Operation Corporation Ltd.

181st OCC Meeting

At ERPC, Kolkata

22nd July, 2021

ER Grid Performances

Highlights for the month of June-2021

Frequency Profile

Average Freq:- 50.0 1Hz

Avg FVI: - 0.039

Lowest FVI:- 0.023

Max- 50.27 Hz on 04th June'21

Min- 49.63 Hz on 03rd and 24th June'21

74.53 % of the time frequency was with in IEGC Band

Peak Demand*

ER: 23504 MW on 04th June 2021 at 00:01 hrs

% Growth in Average Demand Met w.r.t. last year: (+)6.72%

BSPHCL : 6219 MW ; ON 30/06/21

JUVNL: 1685 MW; ON 03/06/21

DVC: 3514 MW; ON 02/06/21

GRIDCO: 5248 MW; ON 09/06/21

WB: 8560 MW; ON 03/06/21

SIKKIM: 91 MW; ON 18/06/21

Energy met

Max. 498 MU on 04th June' *2021*

%Growth w.r.t. last year on Max energy : 7.93%

Avg. 456 MU in June' *2021*

%Growth w.r.t. last year on Avg. energy : 8.08%

New Unit

NIL

Open Access

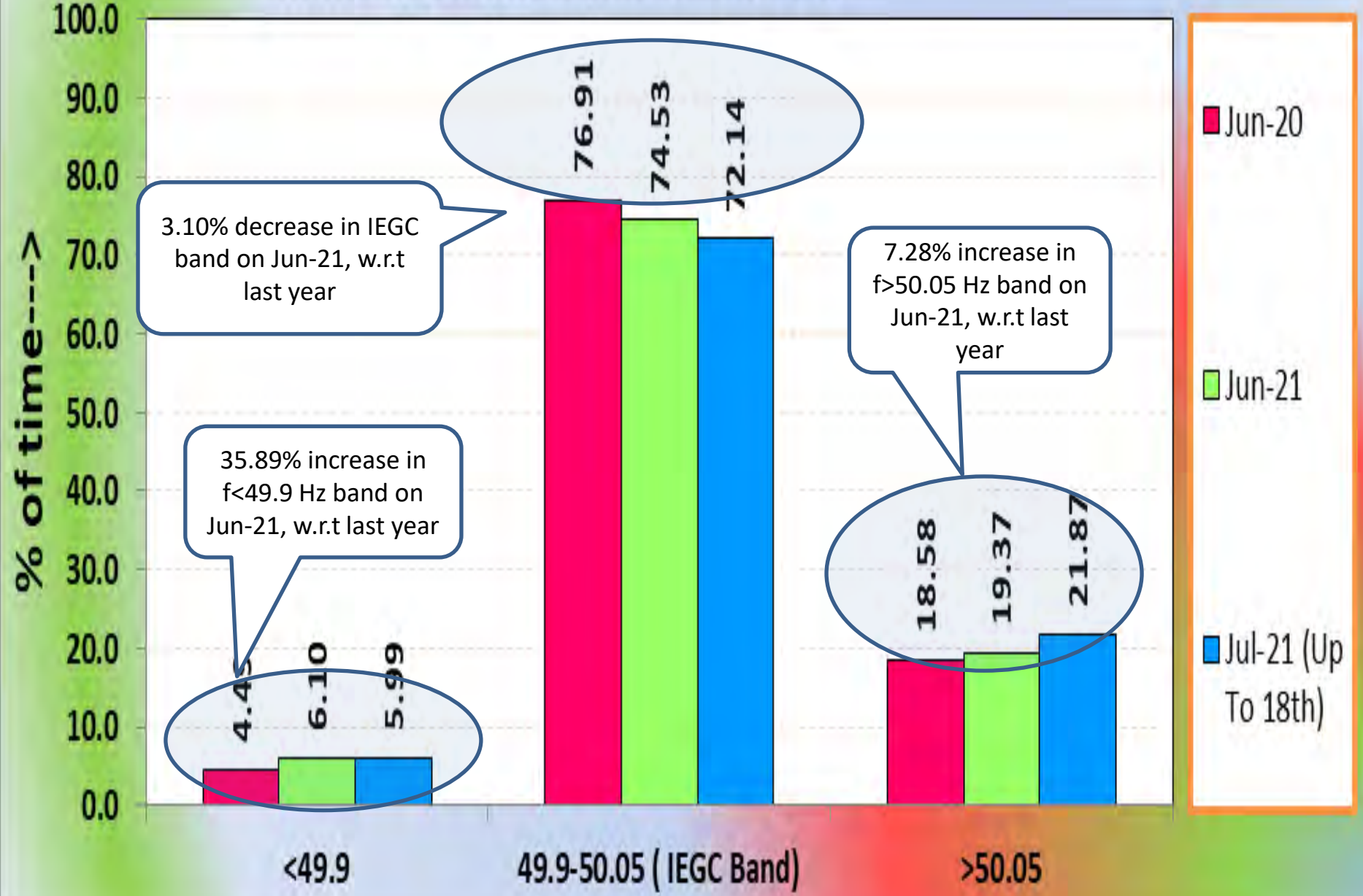
STOA transactions approved : 820 nos.

Energy Approved- 1149.4 MUs

New Element addition during the month:

SL No.	Element Name	Owner	Charging Date	Charging Time	Remarks
1	400kV JEERAT - SAGARDIGHI- 2	PGCIL	21-06-2021	20:27	LILO of 400 kV Subhasgram -Sagardighi S/C at Jeerat Substation
2	400kV JEERAT - SUBHASGRAM- 2	PGCIL	20-06-2021	21:28	LILO of 400 kV Subhasgram -Sagardighi S/C at Jeerat Substation
3	132kV SITAMARHI - RUNNISAIDPUR- 2	BSPTCL	17-06-2021	13:52	Bay at Sitamarhi end was charged on 11.04.21.
4	132kV SITAMARHI - RUNNISAIDPUR- 1	BSPTCL	17-06-2021	13:50	Bay at Sitamarhi end was charged on 11.04.21.
5	400kV BAHRAMPUR - BHERAMERA- 3	PGCIL	14-06-2021	18:02	Power flow of the line was 280 MW.
6	220kV MAIN BAY OF JAYNAGAR -3 AT JEYPORE	OPTCL	25-06-2021	16:53	OPTCL owned bay at PGCIL Jeypore SS
7	220kV MAIN BAY OF JAYNAGAR -4 AT JEYPORE	OPTCL	25-06-2021	16:58	OPTCL owned bay at PGCIL Jeypore SS
8	400kV MAIN BAY OF 315MVA ICT-III AT SUBHASGRAM(PG)	PGCIL	27-06-2021	16:45	Bay Upgradation Works
9	400kV MAIN BAY OF 315MVA ICT-IV AT SUBHASGRAM(PG)	PGCIL	27-06-2021	16:35	Bay Upgradation Works
10	400kV ALIPURDUAR - JIGMELLING 1	PGCIL	22-06-2021	12:19	Link is direct circuit besides the alternative circuit through Punatsangchhu.
11	400kV ALIPURDUAR - JIGMELLING 2	PGCIL	18-06-2021	18:06	Link is direct circuit besides the alternative circuit through Punatsangchhu.

Monthly Frequency Profile of Grid



So Far Highest Demand (* As on 18th-Jul-21)

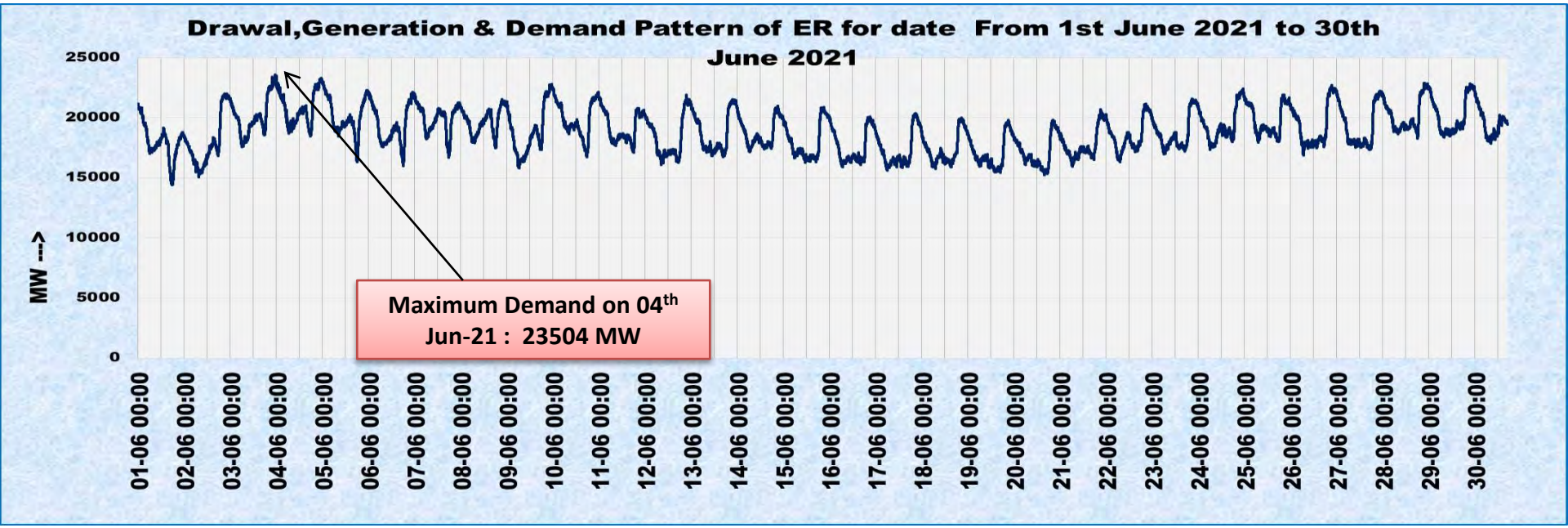
Constitute	Demand (in MW)	Date	Time	Demand met (MW) on 16th Jul'21 (Max. demand met day)	
				MW	Time
Bihar	6789	15-Jul-21	22:01	6627	21:58
DVC	3543	21-Dec-19	18:06	3190	21:20
Jharkhand	1701	13-Apr-21	21:06	1403	19:17
Odisha	6005	17-Jul-21	20:34	5956	22:21
Sikkim	155	11-Jan-20	19:22	83	18:50
W. Bengal	9546	27-May-19	23:31	9245	23:31
ER	24733	16-Jul-21	23:31	24733	23:31

So Far Highest Energy Consumption

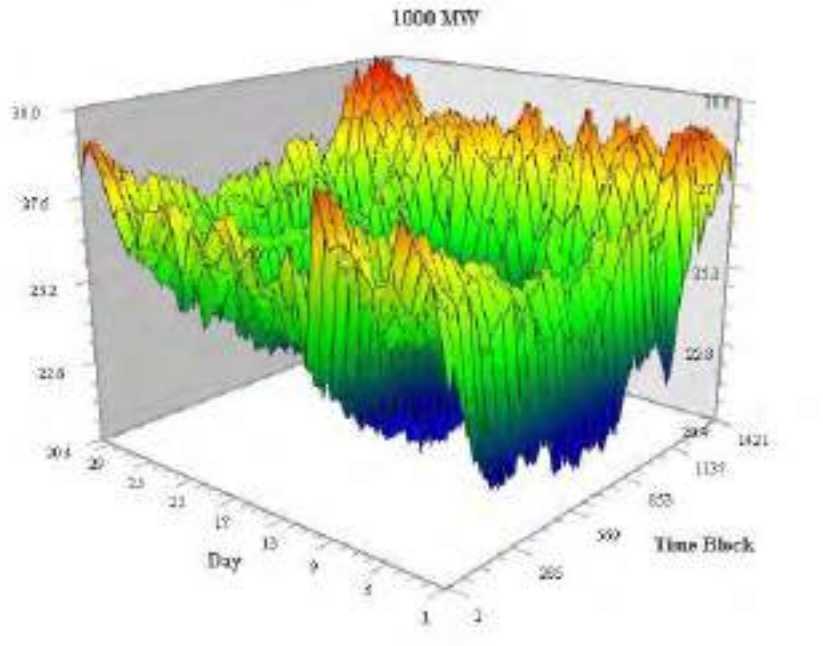
Constitute	Energy consumption (in MUs)	Date	Energy met on 16th Jul'21 (Max. demand met day)
Bihar	132.9	16-Jul-21	132.9
DVC	75.8	12-Jul-18	68.0
Jharkhand	31.1	28-Apr-21	29.9
Odisha	124.6	19-May-21	119.6
Sikkim	2.5	28-Jan-20	1.4
W. Bengal	199.9	28-May-19	190.0
ER	541.8	16-Jul-21	541.8

3D VIEW OF ER DEMAND PATTERN

ER Demand Pattern in Jun-21

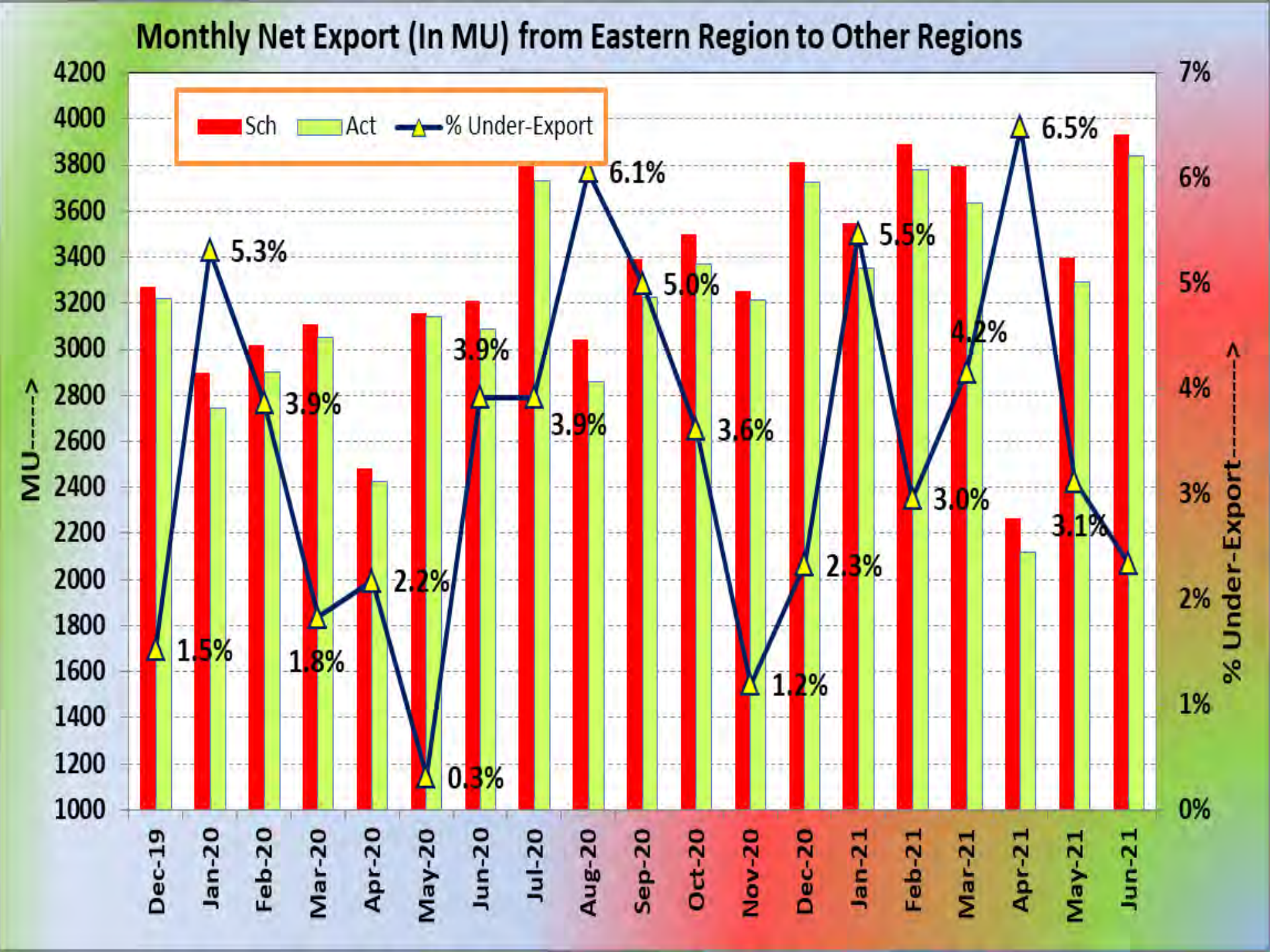


EASTERN REGION DEMAND
3D CURVES (Jun'21)



Over Drawl / Under Injection by ER Entities

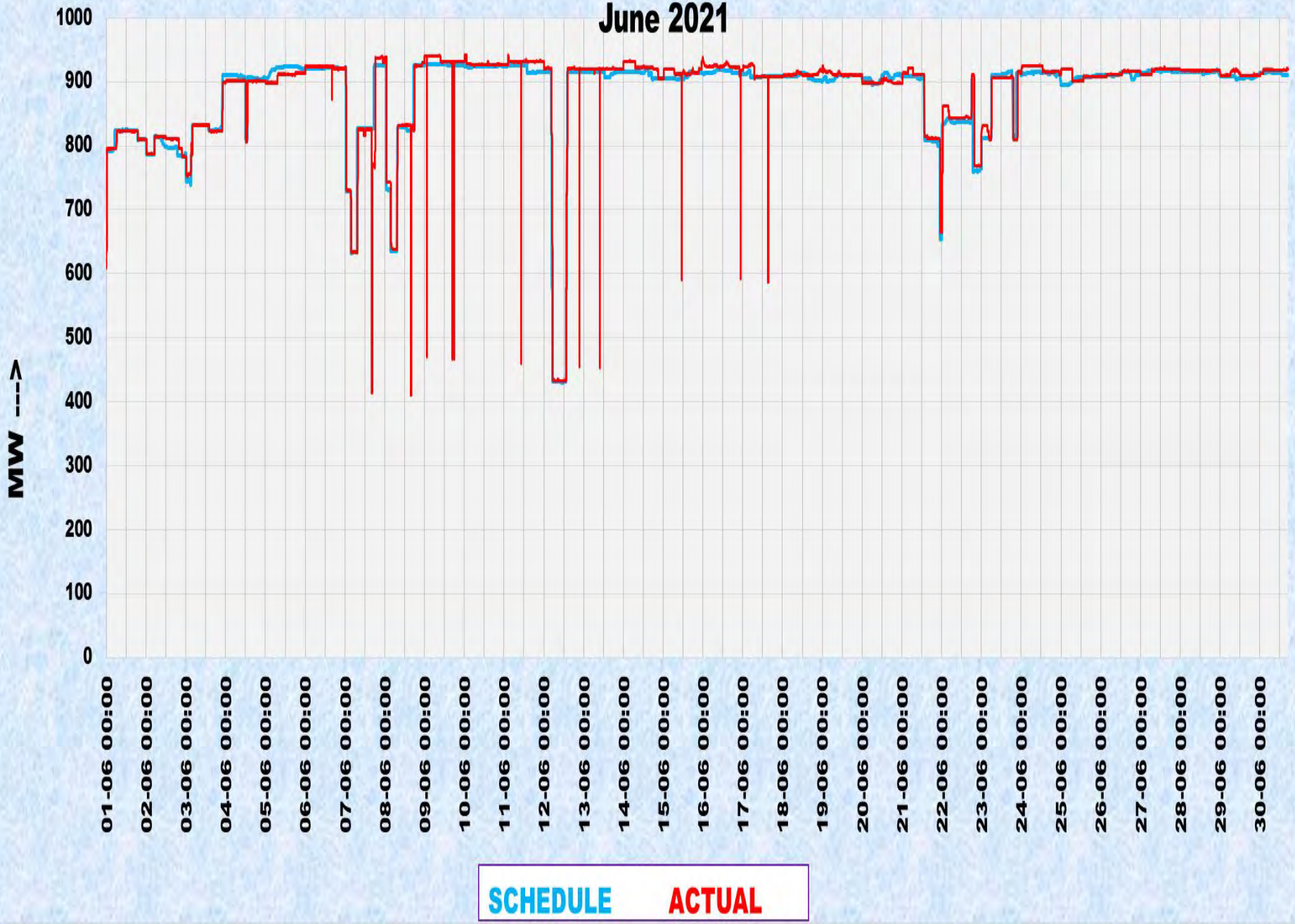
Non-compliance of direction issued by SLDC


Monthly Net Export (In MU) from Eastern Region to Other Regions
Sch
Act
% Under-Export
MU----->
% Under-Export-------->
4200
4000
3800
3600
3400
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
7%
6%
5%
4%
3%
2%
1%
0%
1.5%
5.3%
3.9%
1.8%
2.2%
0.3%
3.9%
3.9%
6.1%
5.0%
3.6%
1.2%
2.3%
5.5%
3.0%
4.2%
6.5%
3.1%
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
Jun-20
Jul-20
Aug-20
Sep-20
Oct-20
Nov-20
Dec-20
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21

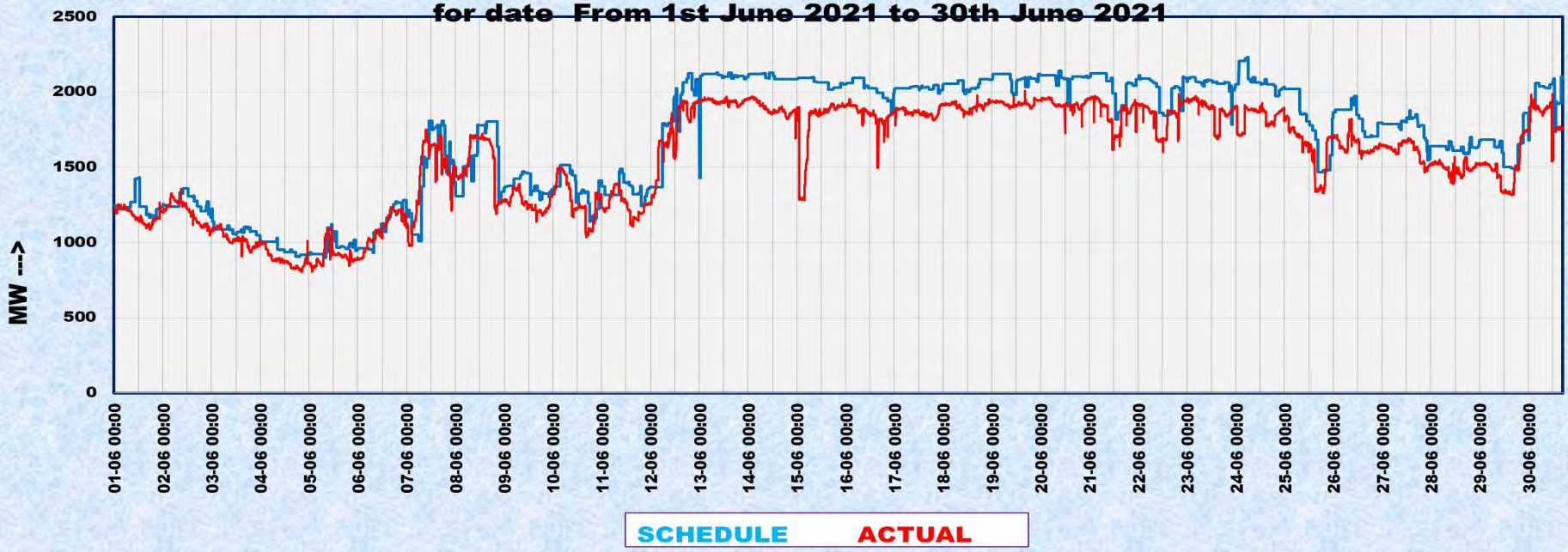
June 2021 Schedule vs Actual Status

	Schedule (MU)	Actual (MU)	OD (MU)	Daily Avg OD (MU)	% Deviation
Bihar	2981	2980	-1	0.0	0.0
Jharkhand	706	701	-5	-0.2	-0.7
DVC	-1251	-1248	3	0.1	0.2
Odisha	1083	1093	10	0.3	**0.9**
West Bengal	1107	1133	26	0.8	**2.3**
Sikkim	36	42	6	0.2	16.7
FSTPP I & II	726	718	-8	-0.3	-1.1
FSTPP III	251	251	0	0.0	0.0
KHSTPP I	378	371	-7	-0.2	**-1.9**
KHSTPP II	896	887	-9	-0.3	-1.0
TSTPP I	603	599	-4	-0.1	-0.7
BARH II	654	650	-4	-0.1	-0.6
NPGC	402	401	-1	0.0	-0.2
GMR	342	345	3	0.1	0.9
MPL	601	600	-1	0.0	-0.2
APRNL	253	251	-2	-0.1	-0.8
JITPL	690	691	1	0.0	0.1

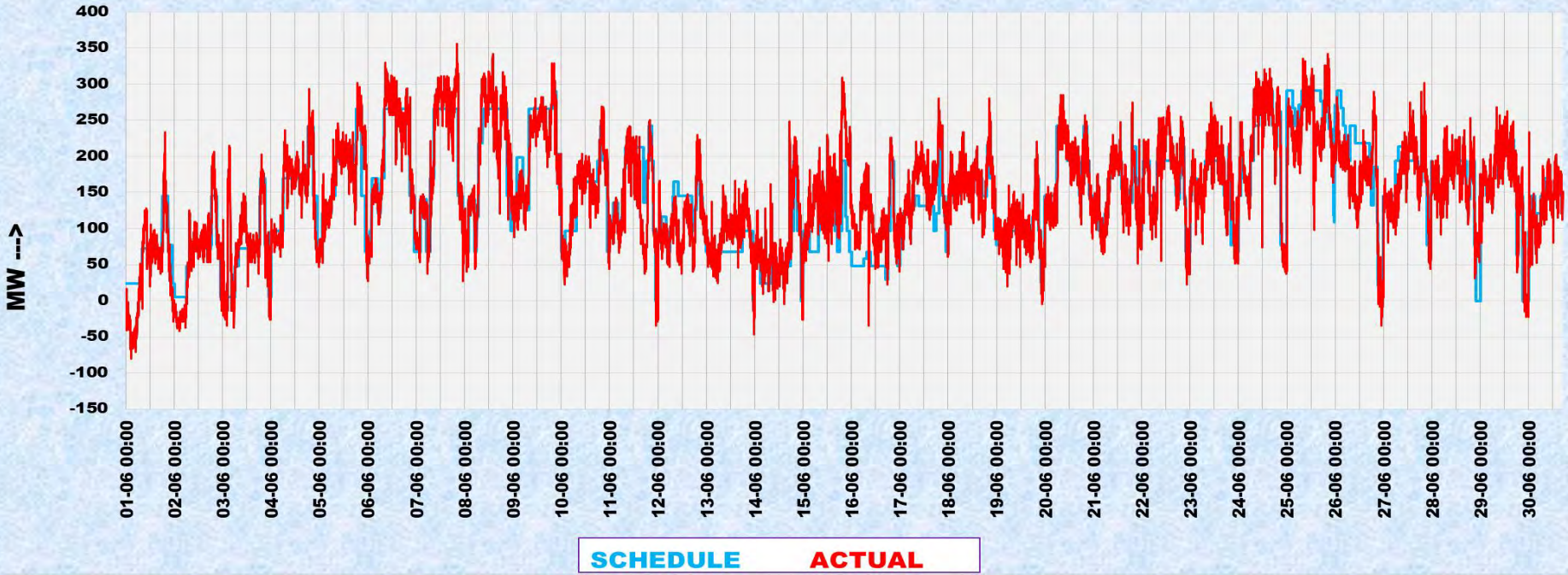
Schedule vs Actual Drawal of Bangladesh for date From 1st June 2021 to 30th June 2021

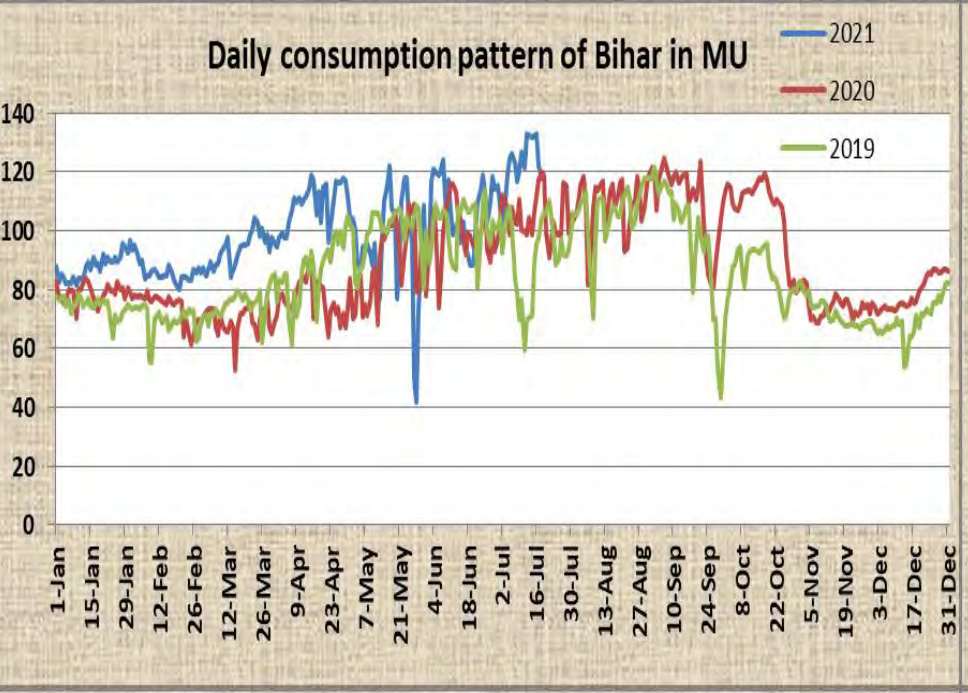


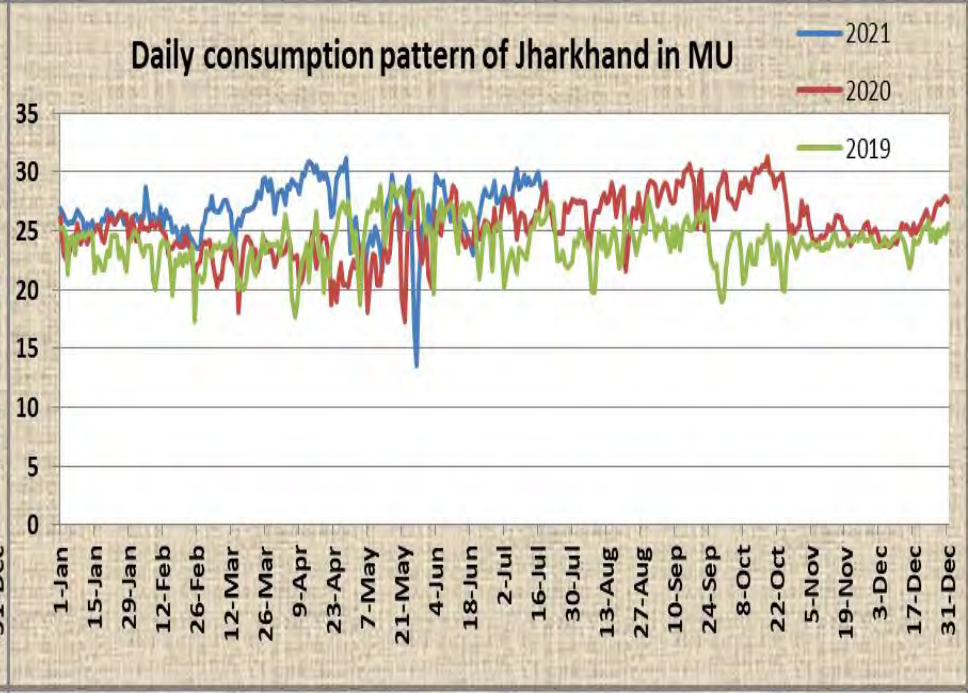
Schedule vs Actual Generation of Tala+Chukha+Kurichu+dagachu+Mangdechu_Gen for date From 1st June 2021 to 30th June 2021

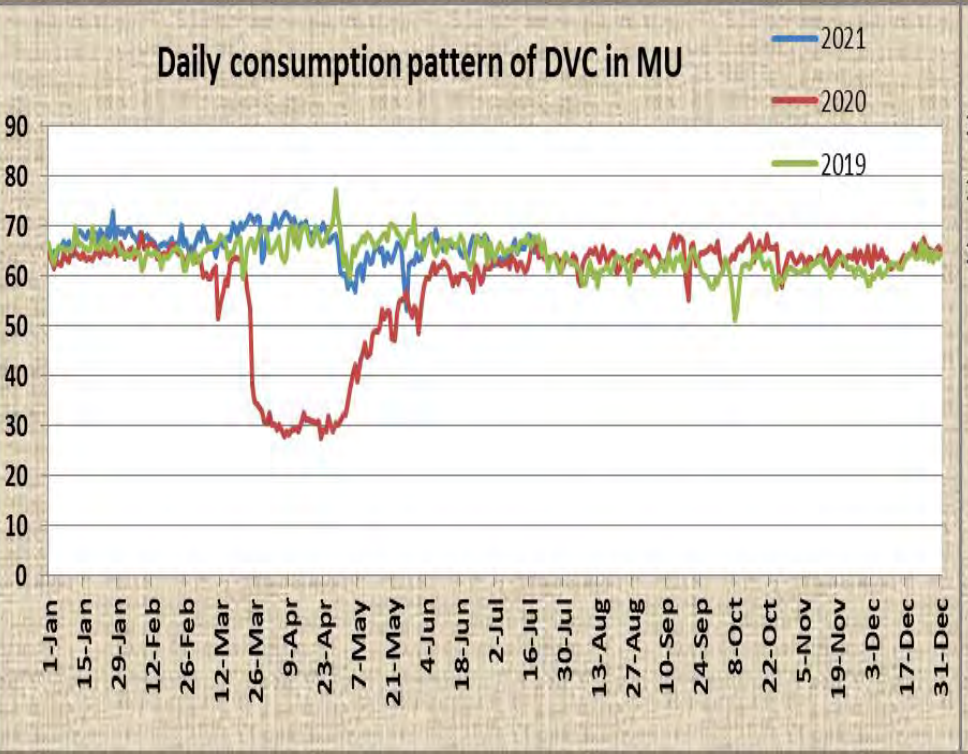


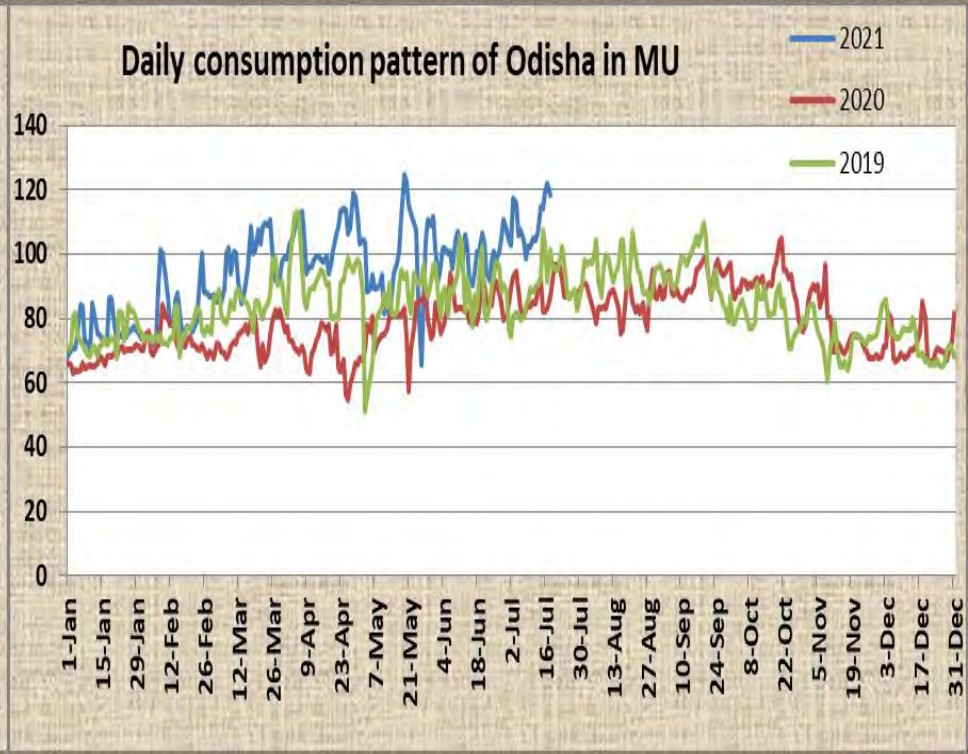
Schedule vs Actual Drawal of Nepal for date From 1st June 2021 to 30th June 2021

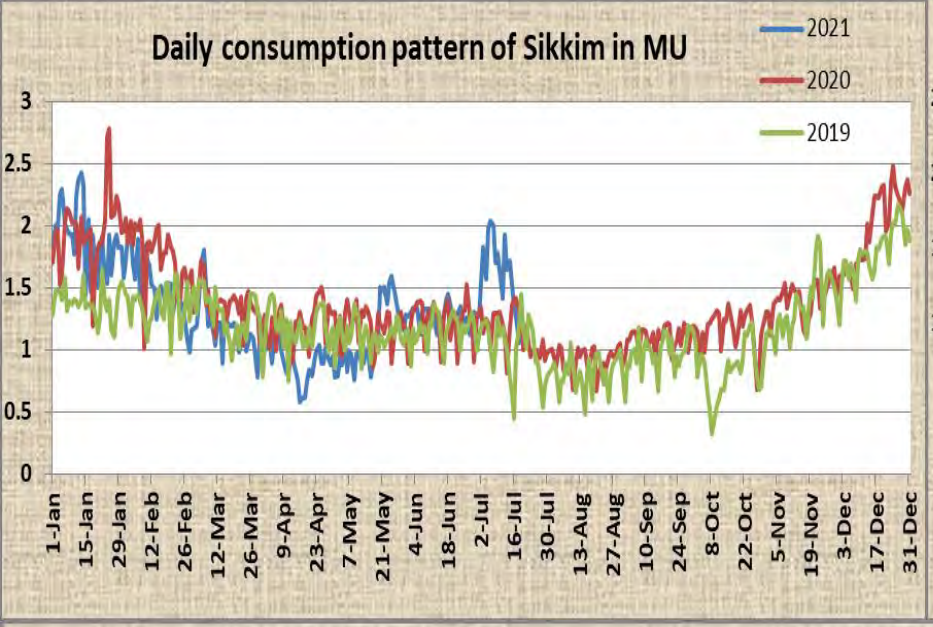


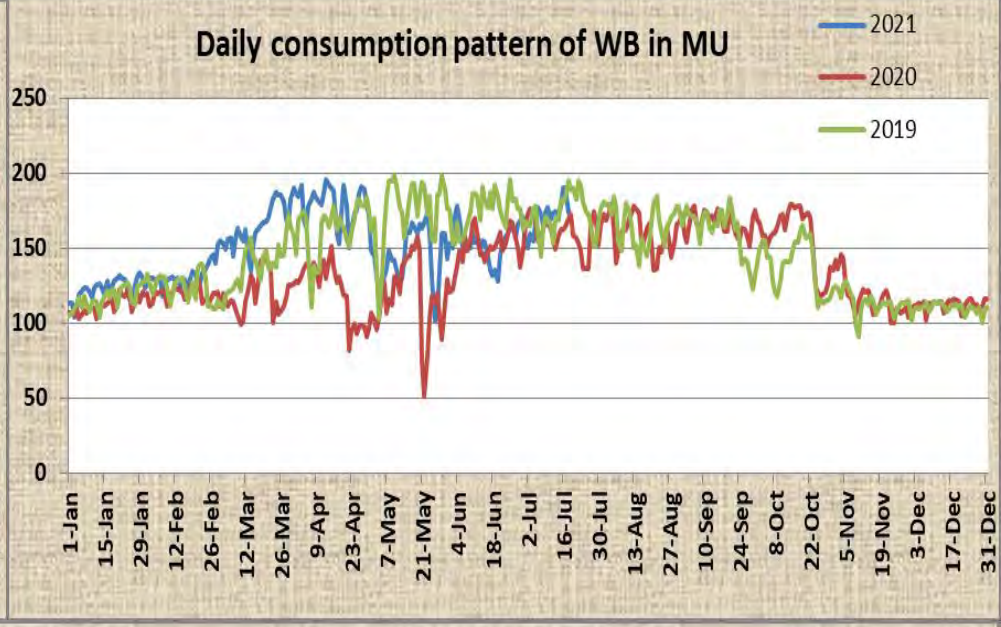

Daily consumption pattern of Bihar in MU
2021
2020
2019
140
120
100
80
60
40
20
0
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
12-Mar
26-Mar
9-Apr
23-Apr
7-May
21-May
4-Jun
18-Jun
2-Jul
16-Jul
30-Jul
13-Aug
27-Aug
10-Sep
24-Sep
8-Oct
22-Oct
5-Nov
19-Nov
3-Dec
17-Dec
31-Dec

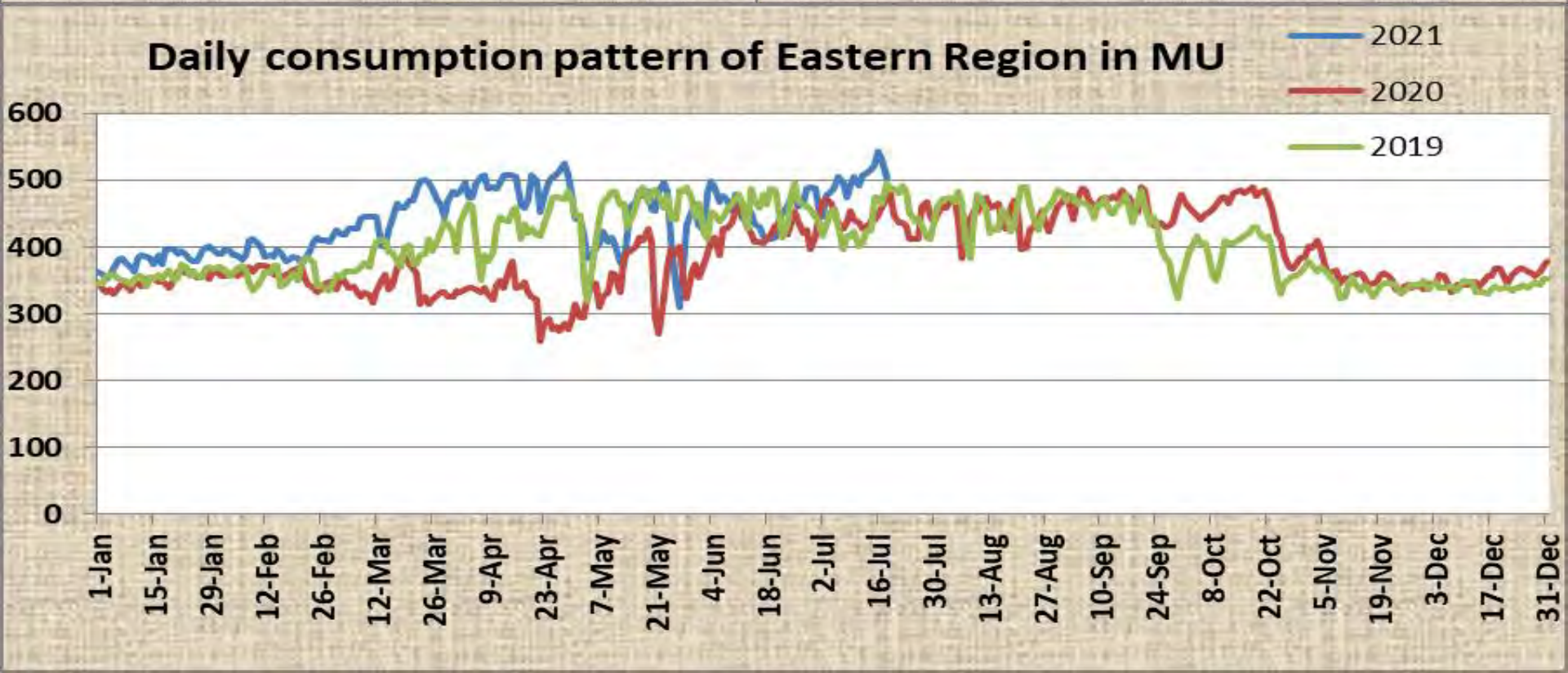

Daily consumption pattern of Jharkhand in MU
2021
2020
2019
35
30
25
20
15
10
5
0
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
12-Mar
26-Mar
9-Apr
23-Apr
7-May
21-May
4-Jun
18-Jun
2-Jul
16-Jul
30-Jul
13-Aug
27-Aug
10-Sep
24-Sep
8-Oct
22-Oct
5-Nov
19-Nov
3-Dec
17-Dec
31-Dec


Daily consumption pattern of DVC in MU
2021
2020
2019
90
80
70
60
50
40
30
20
10
0
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
12-Mar
26-Mar
9-Apr
23-Apr
7-May
21-May
4-Jun
18-Jun
2-Jul
16-Jul
30-Jul
13-Aug
27-Aug
10-Sep
24-Sep
8-Oct
22-Oct
5-Nov
19-Nov
3-Dec
17-Dec
31-Dec

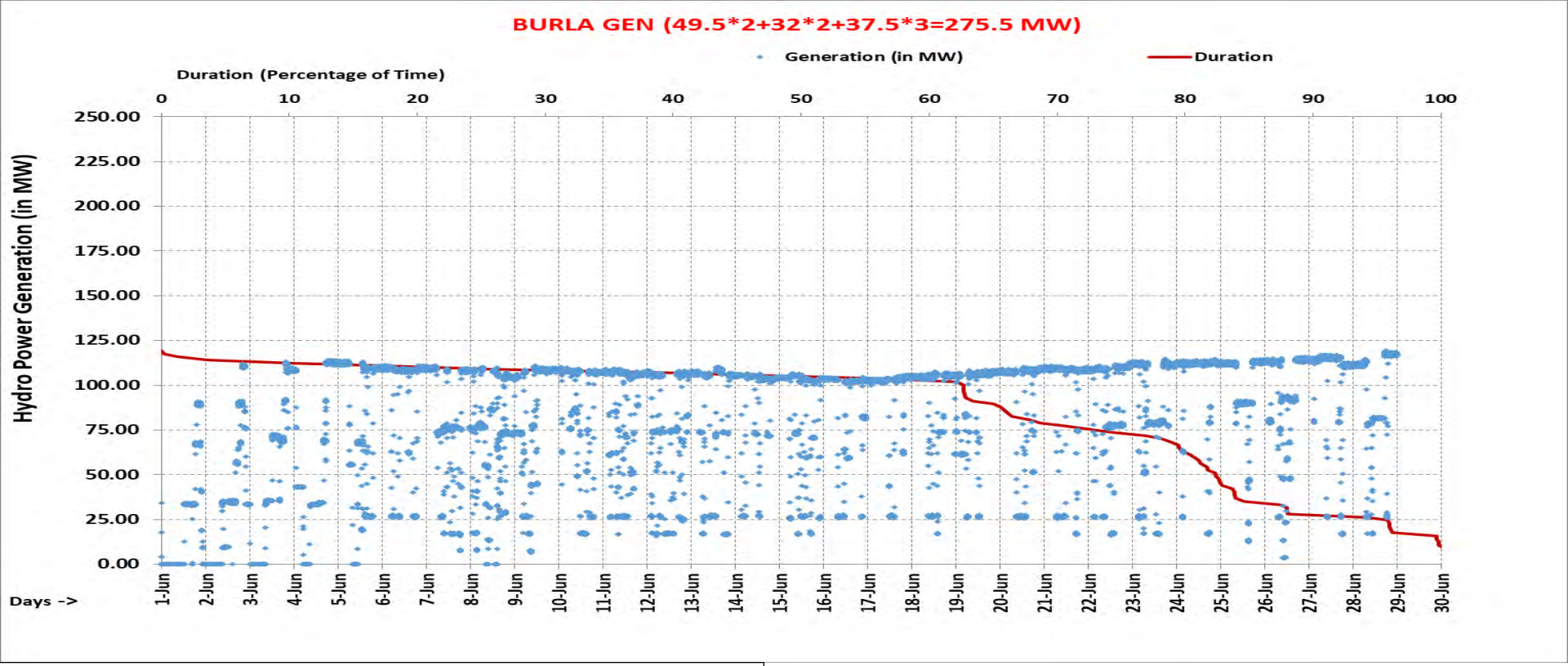

Daily consumption pattern of Odisha in MU
2021
2020
2019
140
120
100
80
60
40
20
0
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
12-Mar
26-Mar
9-Apr
23-Apr
7-May
21-May
4-Jun
18-Jun
2-Jul
16-Jul
30-Jul
13-Aug
27-Aug
10-Sep
24-Sep
8-Oct
22-Oct
5-Nov
19-Nov
3-Dec
17-Dec
31-Dec

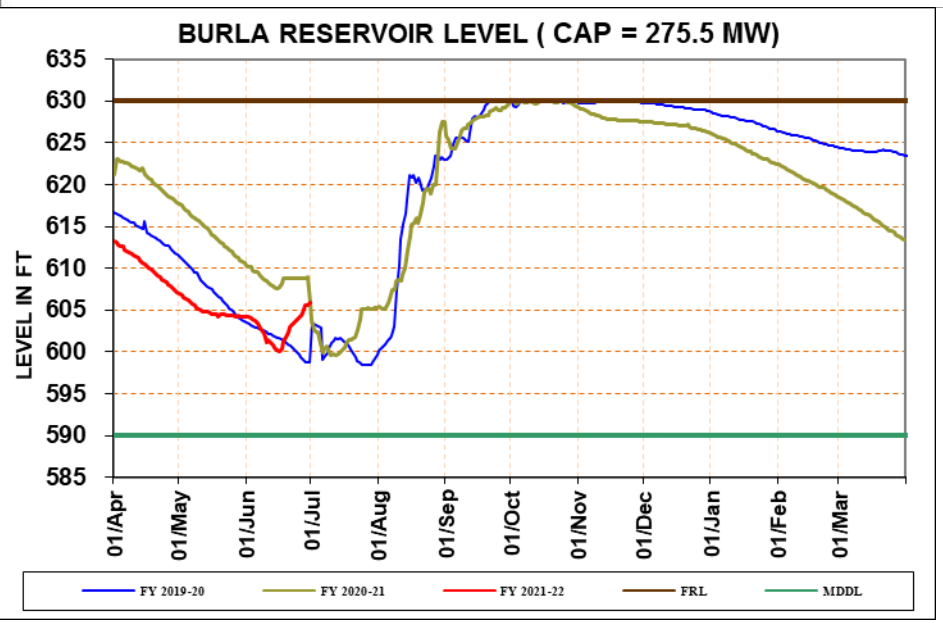

Daily consumption pattern of Sikkim in MU
2021
2020
2019
3
2.5
2
1.5
1
0.5
0
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
12-Mar
26-Mar
9-Apr
23-Apr
7-May
21-May
4-Jun
18-Jun
2-Jul
16-Jul
30-Jul
13-Aug
27-Aug
10-Sep
24-Sep
8-Oct
22-Oct
5-Nov
19-Nov
3-Dec
17-Dec
31-Dec

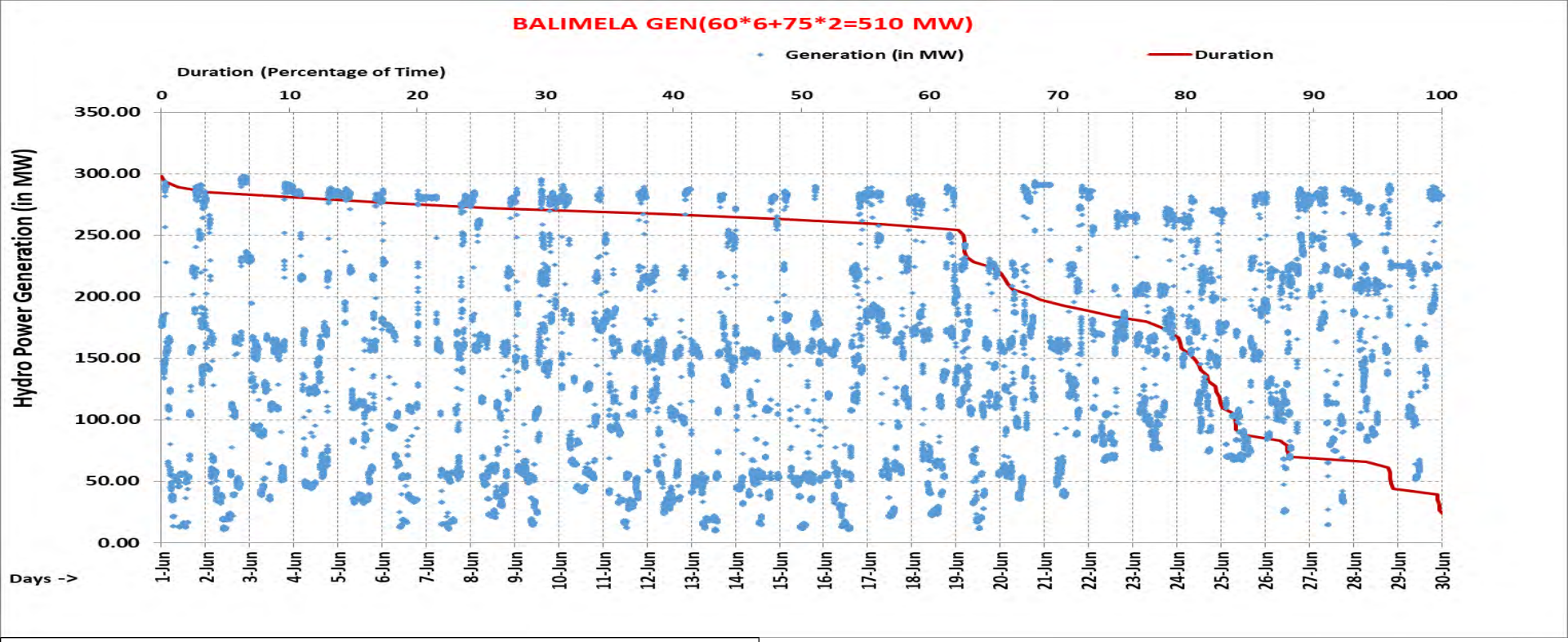

Daily consumption pattern of WB in MU
2021
2020
2019
250
200
150
100
50
0
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
12-Mar
26-Mar
9-Apr
23-Apr
7-May
21-May
4-Jun
18-Jun
2-Jul
16-Jul
30-Jul
13-Aug
27-Aug
10-Sep
24-Sep
8-Oct
22-Oct
5-Nov
19-Nov
3-Dec
17-Dec
31-Dec

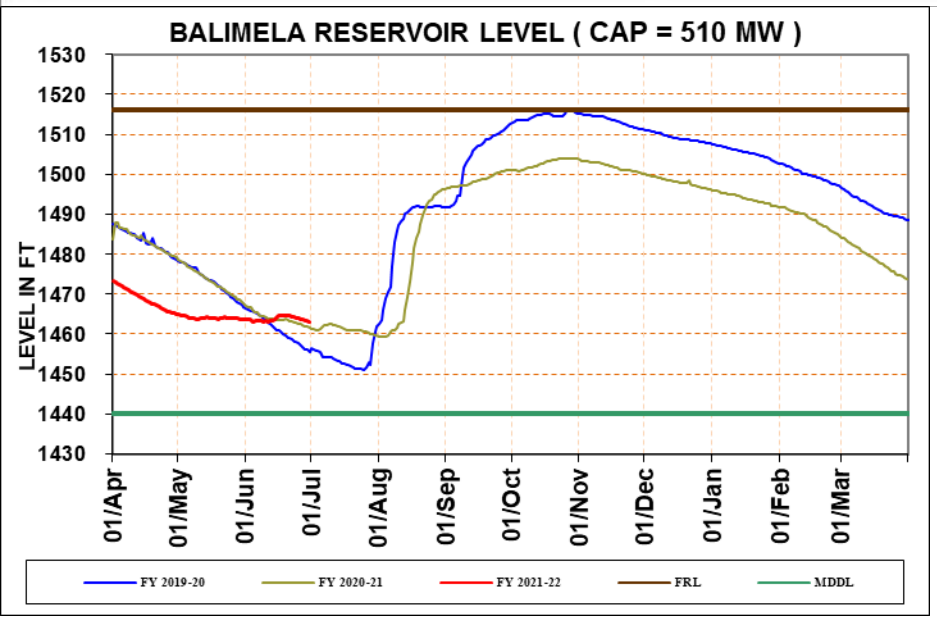

Daily consumption pattern of Eastern Region in MU
2021
2020
2019
600
500
400
300
200
100
0
1-Jan
15-Jan
29-Jan
12-Feb
26-Feb
12-Mar
26-Mar
9-Apr
23-Apr
7-May
21-May
4-Jun
18-Jun
2-Jul
16-Jul
30-Jul
13-Aug
27-Aug
10-Sep
24-Sep
8-Oct
22-Oct
5-Nov
19-Nov
3-Dec
17-Dec
31-Dec

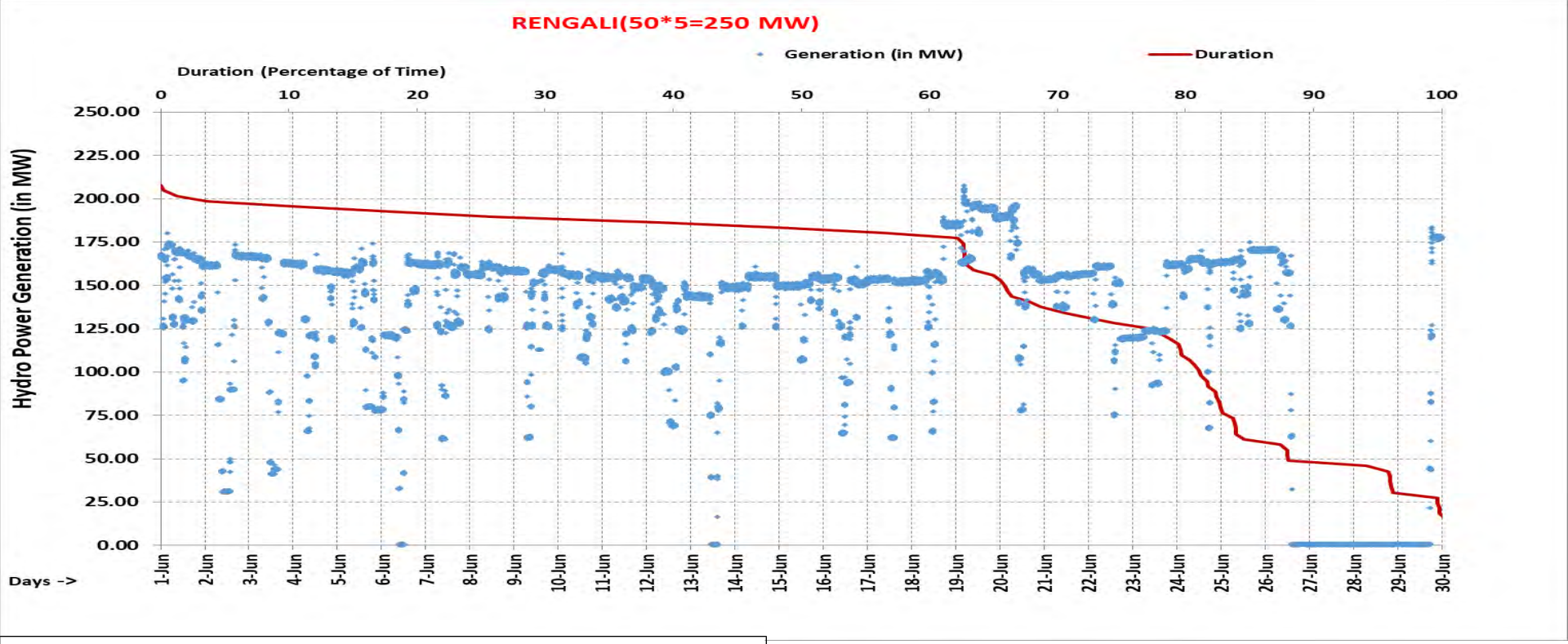
State Hydro Generators Performance


BURLA GEN (49.5*2+32*2+37.5*3=275.5 MW)
Generation (in MW)
Duration
Duration (Percentage of Time)
0
10
20
30
40
50
60
70
80
90
100
Hydro Power Generation (in MW)
250.00
225.00
200.00
175.00
150.00
125.00
100.00
75.00
50.00
25.00
0.00
Days -v
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
15-Jun
16-Jun
17-Jun
18-Jun
19-Jun
20-Jun
21-Jun
22-Jun
23-Jun
24-Jun
25-Jun
26-Jun
27-Jun
28-Jun
29-Jun
30-Jun


BURLA RESERVOIR LEVEL (CAP = 275.5 MW)
LEVEL IN FT
635
630
625
620
615
610
605
600
595
590
585
01/Apr
01/May
01/Jun
01/Jul
01/Aug
01/Sep
01/Oct
01/Nov
01/Dec
01/Jan
01/Feb
01/Mar
FY 2019-20
FY 2020-21
FY 2021-22
FRL
MDDL


BALIMELA GEN(60*6+75*2=510 MW)
Generation (in MW)
Duration
Duration (Percentage of Time)
0
10
20
30
40
50
60
70
80
90
100
Hydro Power Generation (in MW)
350.00
300.00
250.00
200.00
150.00
100.00
50.00
0.00
Days -v
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
15-Jun
16-Jun
17-Jun
18-Jun
19-Jun
20-Jun
21-Jun
22-Jun
23-Jun
24-Jun
25-Jun
26-Jun
27-Jun
28-Jun
29-Jun
30-Jun


BALIMELA RESERVOIR LEVEL (CAP = 510 MW)
LEVEL IN FT
1530
1520
1510
1500
1490
1480
1470
1460
1450
1440
1430
01/Apr
01/May
01/Jun
01/Jul
01/Aug
01/Sep
01/Oct
01/Nov
01/Dec
01/Jan
01/Feb
01/Mar
FY 2019-20
FY 2020-21
FY 2021-22
FRL
MDDL


RENGALI(50*5=250 MW)
Generation (in MW)
Duration
Duration (Percentage of Time)
0
10
20
30
40
50
60
70
80
90
100
Hydro Power Generation (in MW)
250.00
225.00
200.00
175.00
150.00
125.00
100.00
75.00
50.00
25.00
0.00
Days -v
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
15-Jun
16-Jun
17-Jun
18-Jun
19-Jun
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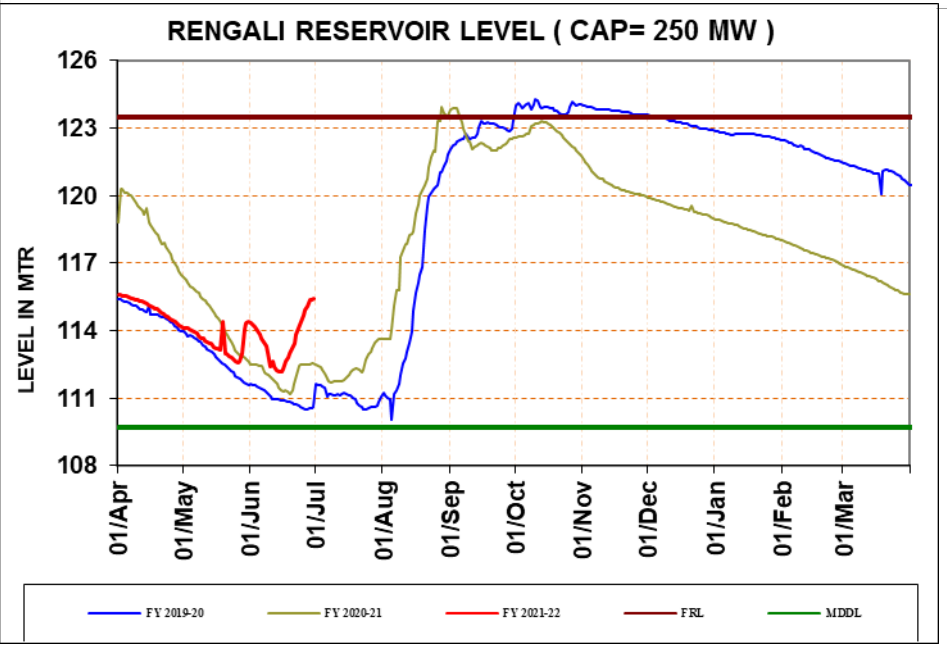
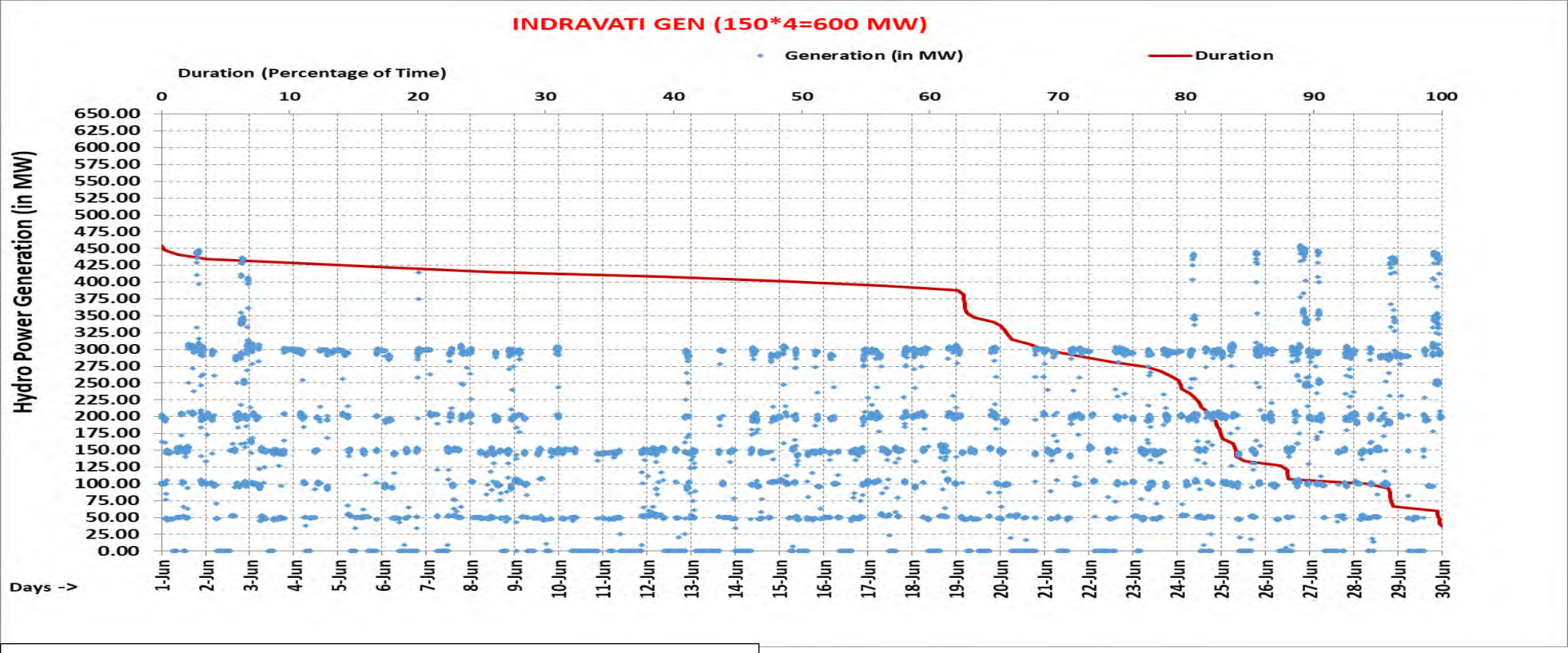
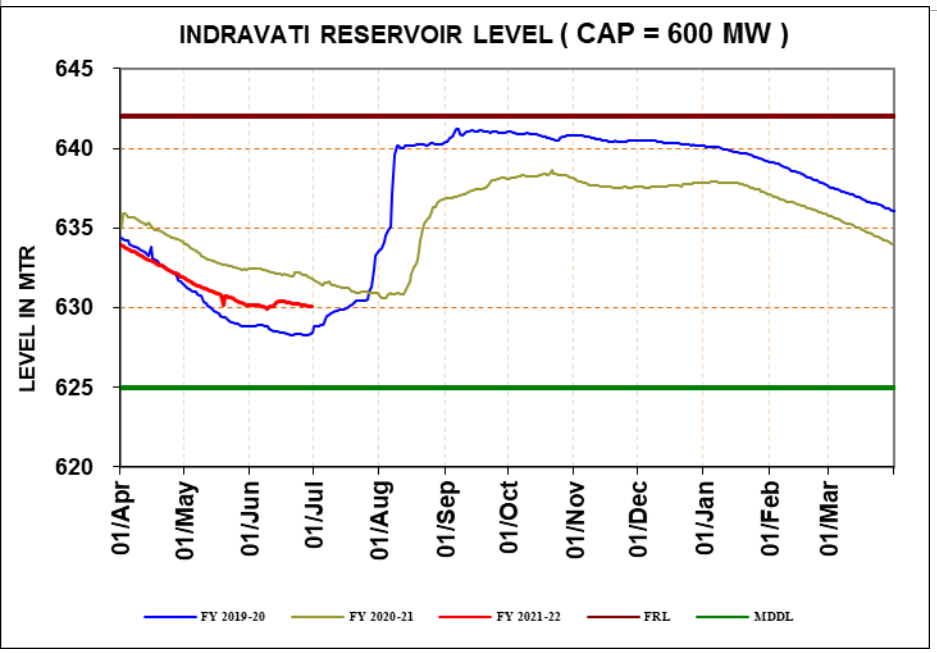
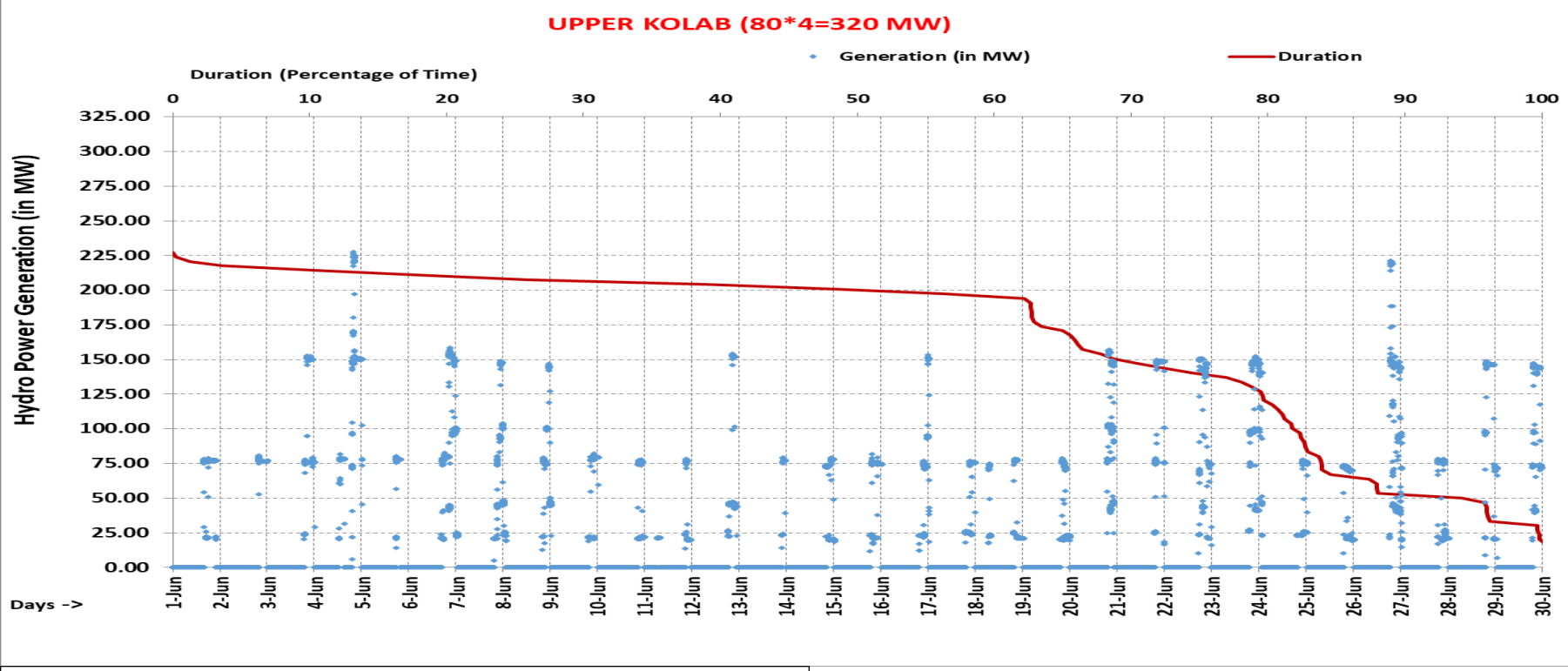
22-Jun
23-Jun
24-Jun
25-Jun
26-Jun
27-Jun
28-Jun
29-Jun
30-Jun


RENGALI RESERVOIR LEVEL (CAP= 250 MW)
LEVEL IN MTR
126
123
120
117
114
111
108
01/Apr
01/May
01/Jun
01/Jul
01/Aug
01/Sep
01/Oct
01/Nov
01/Dec
01/Jan
01/Feb
01/Mar
FY 2019-20
FY 2020-21
FY 2021-22
FRL
MDDL


INDRAVATI GEN (150*4=600 MW)
Generation (in MW)
Duration
Duration (Percentage of Time)
Hydro Power Generation (in MW)
Days -v


INDRAVATI RESERVOIR LEVEL (CAP = 600 MW)
LEVEL IN MTR
FY 2019-20
FY 2020-21
FY 2021-22
FRL
MDDL


UPPER KOLAB (80*4=320 MW)
Generation (in MW)
Duration
Duration (Percentage of Time)
0
10
20
30
40
50
60
70
80
90
100
Hydro Power Generation (in MW)
325.00
300.00
275.00
250.00
225.00
200.00
175.00
150.00
125.00
100.00
75.00
50.00
25.00
0.00
Days -v
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
15-Jun
16-Jun
17-Jun
18-Jun
19-Jun
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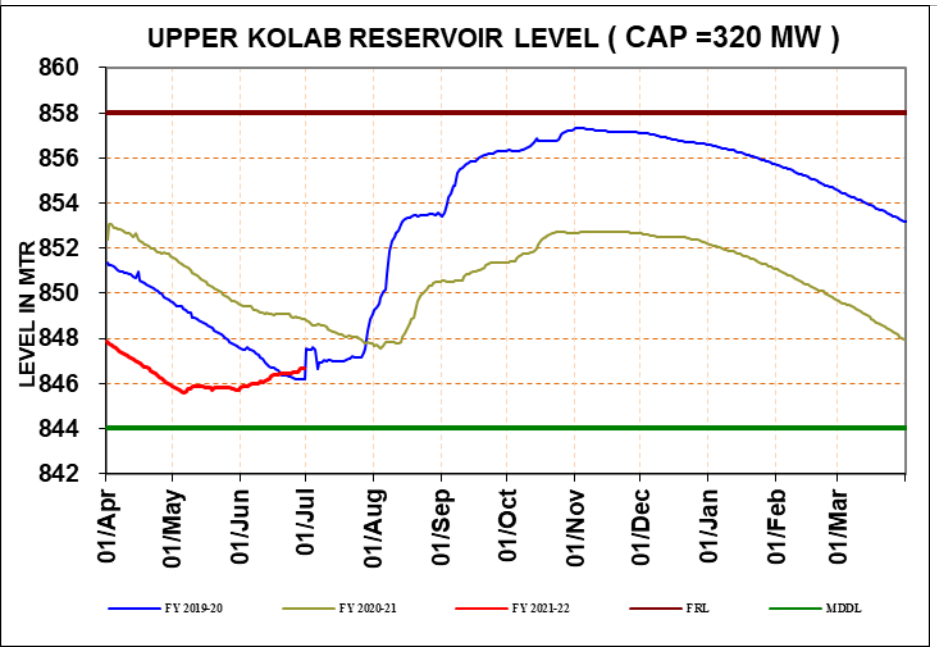
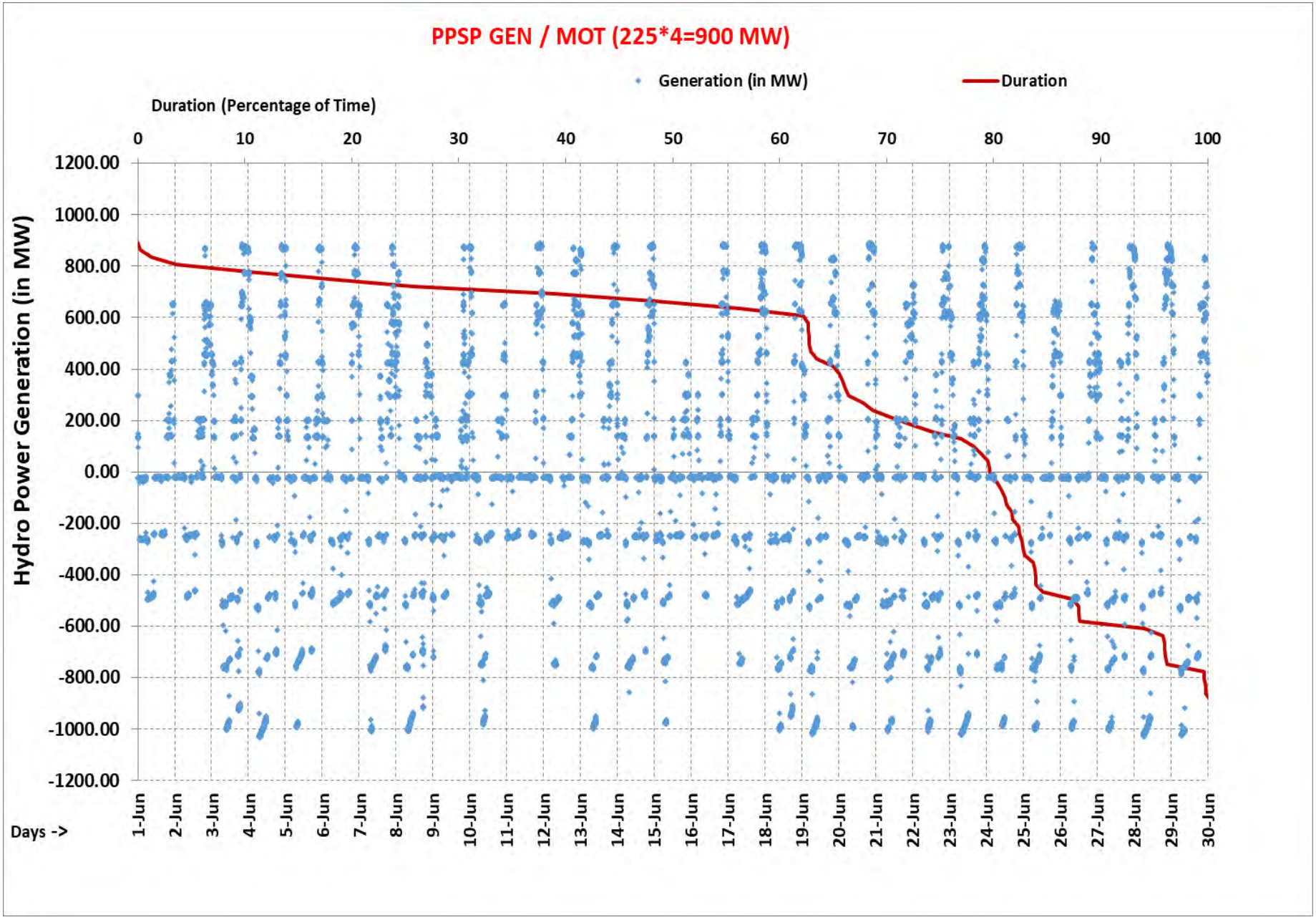
21-Jun
22-Jun
23-Jun
24-Jun
25-Jun
26-Jun
27-Jun
28-Jun
29-Jun
30-Jun


UPPER KOLAB RESERVOIR LEVEL (CAP =320 MW)
LEVEL IN MTR
860
858
856
854
852
850
848
846
844
842
01/Apr
01/May
01/Jun
01/Jul
01/Aug
01/Sep
01/Oct
01/Nov
01/Dec
01/Jan
01/Feb
01/Mar
FY 2019-20
FY 2020-21
FY 2021-22
FRL
MDDL


PPSP GEN / MOT (225*4=900 MW)
Generation (in MW)
Duration
Duration (Percentage of Time)
0
10
20
30
40
50
60
70
80
90
100
Hydro Power Generation (in MW)
1200.00
1000.00
800.00
600.00
400.00
200.00
0.00
-200.00
-400.00
-600.00
-800.00
-1000.00
-1200.00
Days ->
1-Jun
2-Jun
3-Jun
4-Jun
5-Jun
6-Jun
7-Jun
8-Jun
9-Jun
10-Jun
11-Jun
12-Jun
13-Jun
14-Jun
15-Jun
16-Jun
17-Jun
18-Jun
19-Jun
20-Jun
21-Jun
22-Jun
23-Jun
24-Jun
25-Jun
26-Jun
27-Jun
28-Jun
29-Jun
30-Jun


THANKS

पावर सिस्टम ऑपरेशन करपोरेशन लिमिटेड
(भारत सरकार का उद्यम)
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(A Government of India Enterprise)
Eastern Regional Load Despatch Centre: 14, Golf Club Road, Tollygunge, Kolkata-700 033.
CIN: U40105DL2009GOI188682
फोन: 033- 24235755, 24174049 फैक्स : 033-24235809/5029 Website:www.erldc.org, Email ID- erldc@posoco.in

Date: 14-07-2020

Report on primary frequency response observed in the generating units of Eastern Region for June 2021 (June 2021 के लिए पूर्वी क्षेत्र के विधुत इकाइयों पर प्राथमिक आवृत्ति प्रतिक्रिया पर रिपोर्ट)

Frequency response characteristics (FRC) have been analyzed pan India for the event of sudden frequency change that occurred in the month of June 2021. The details of these events and the overall response of the Eastern region have been summarized in Table 1.

Table 1: Summary of the events and Frequency Response Characteristic (FRC) of the Eastern Region for the events

Event	Frequency Change	ER FRC
Event 1: On 11th June 2021 at 16:02:42:120 Hrs, 1500 MW generation loss at Rajasthan in NR.	**50.09 Hz to 49.92 Hz**. Later stabilized at 50.00 Hz.	**51 %**

Analysis of Frequency Events is provided below and covers the following aspects :

1. Non Sharing of **generation end data (generation output in MW and frequency/speed measured at generator end) and FRCs** despite of repeated reminders to generating stations and **SLDCs**. List of regional generating stations/SLDCs from which generation end data/FRC yet to be received is shown in table 2.
2. Based on data received from generating stations & SLDCs and SCADA data archived at ERLDC, regional generating stations and state control areas performance have been analyzed and summarized in table 3. **As per Regulation 30(2)-(ii) of CERC Terms and conditions of Tariff regulation 2019, rate of return of equity is to be reduced by 1% in case of non-availability of RGMO or FGMO at existing generating stations.**
3. Based on data received from generating stations & SLDCs, the performance of state generating stations has been analyzed and summarized in table 4.

Table 2: List of regional generating stations/SLDCs from which generation end data/FRC yet to be received (as per status on 13th July 2021)

1. NTPC Talcher
2. NTPC Darlipalli
3. GMR
4. Bihar SLDC
5. Jharkhand SLDC
6. WB SLDC

Table 3: performance of regional generating stations and state control areas for the events in June - 2021*

Generating Station/ SLDC	Event 1
NTPC Farakka	**Satisfactory for Unit 6; Non satisfactory for other units** (Response observed Unit 2: 0, Unit 3: 2MW, Unit 4,5: 6 MW)
NTPC Kahalgaon	**Satisfactory**
NTPC Talcher	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
NTPC Barh	**Satisfactory (**Around 70% of ideal response**)**
NTPC Darlipalli	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
BRBCL	**Satisfactory** for unit 2 & 3. **Non-Satisfactory** for unit 1.
NPGC Nabinagar	**Satisfactory,** But response withdrawn within 3 min at rate faster than 1% per min.
GMR	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
JITPL	**Non-Satisfactory**
MPL	**Satisfactory**
Adhunik	**Non-Satisfactory**
Teesta V HEP	Unit was not in service
Teesta III HEP	**Satisfactory**
Dikchu HEP	Unit under spillage condition. No margin was available.
Bihar SLDC	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
Jharkhand SLDC	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**
DVC SLDC	**Satisfactory**
GRIDCO SLDC	**Non-Satisfactory**
WB SLDC	**Non-Satisfactory (As per FRC calculated based on ERLDC SCADA data)**

***Response of the generating stations are shown in Annexure 1**

Table 4: performance of state generating stations for the events in June - 2021 (Based on data received from SLDC/generating stations) **

Generating Station	Event 1
Koderma	**Satisfactory**
RTPS	**Non-satisfactory**
DSTPS (Andal)	**Satisfactory**
Mejia B	**Satisfactory**
Mejia	**Satisfactory**
Bokaro A	**Non-satisfactory** (Around 60 % of Ideal response)
HEL	**Satisfactory** (Around 70% of ideal response)
BBGS	**Satisfactory for unit 1 & 2, Unsatisfactory for unit 3**, it was informed that due to poor quality sufficient pressure could not be maintained.

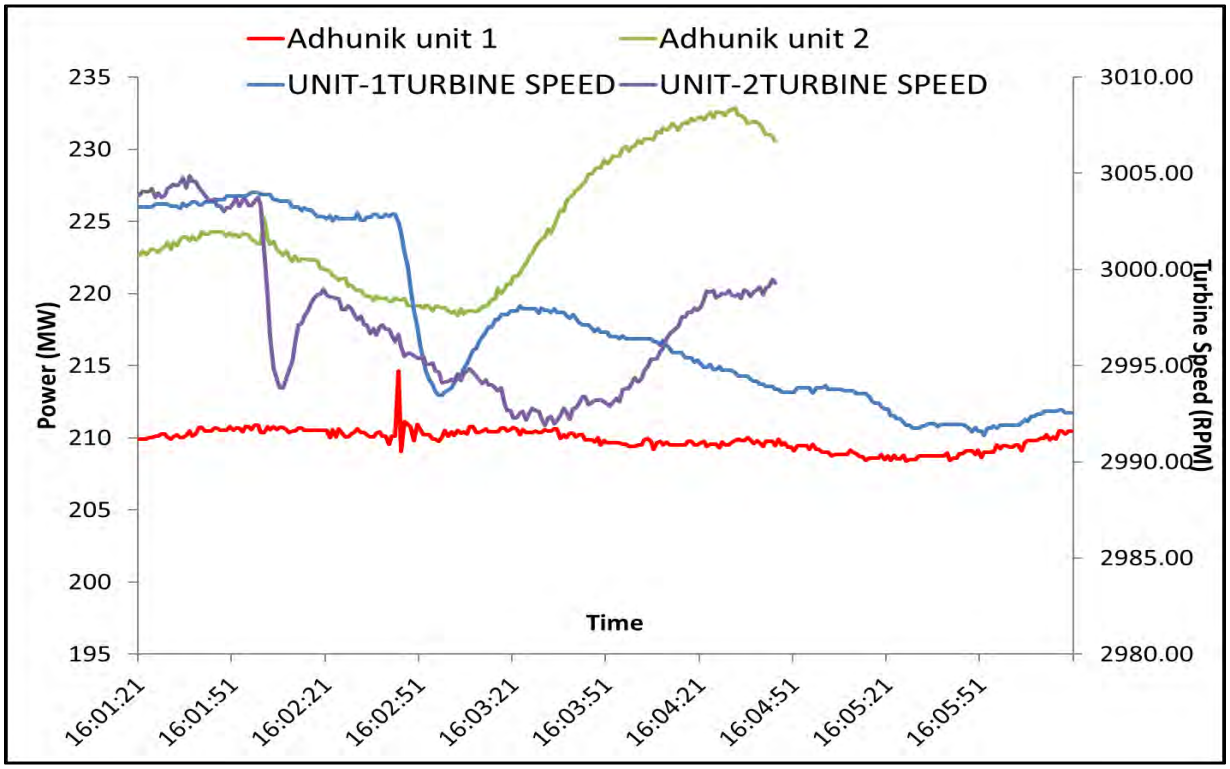
****Response of these generating stations are shown in Annexure 2**

Remarks on the governor response observed at generating stations:

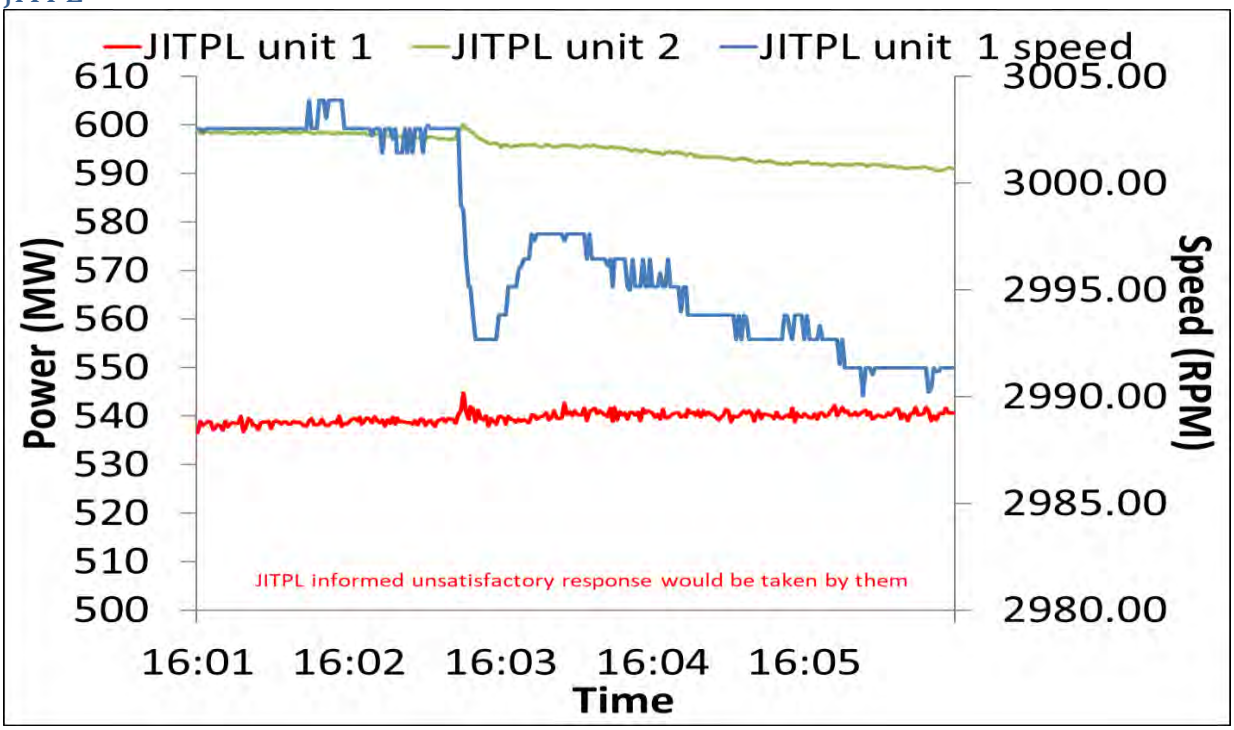
- **NTPC Farakka:** Governor may be tuned so that response can be sustained for at least 3-5 minutes.
- **NTPC Barh:** Governor may be tuned so that amount of response can be increased and response can be sustained for at least 3-5 minutes.
- **BRBCL:** Governor may be tuned for unit 2 & 3 so that response can be sustained for at least 3-5 minutes.
- **NPGC Nabinagar:** Governor may be tuned so that response can be sustained for at least 3-5 minutes. In case of withdrawal of response, generation should be reduced to pre disturbance level at rate less than 1% per min.
- **HEL:** Governor may be tuned so that amount of response can be increased and response can be sustained for at least 3-5 minutes.
- **Mejia B, DSTPS and Koderma:** Governor may be tuned so that amount of response can be increased and response can be sustained for at least 3-5 minutes.

Annexure 1: Variation of generation of regional generating units during frequency change

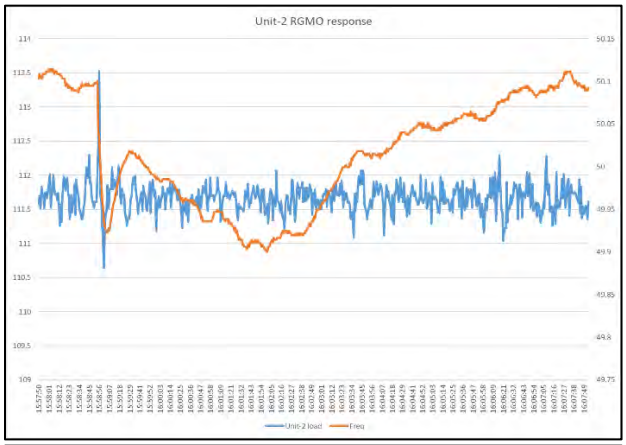
Adhunik

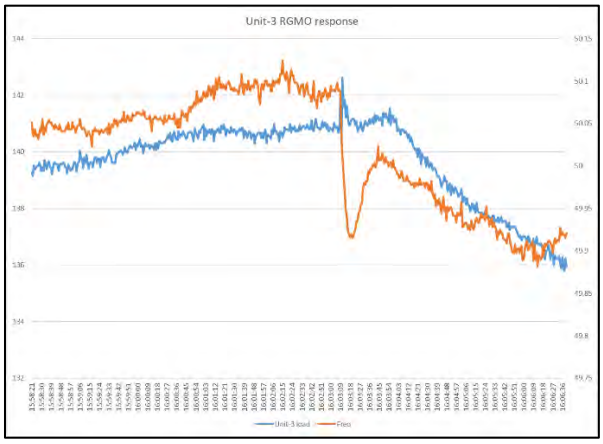


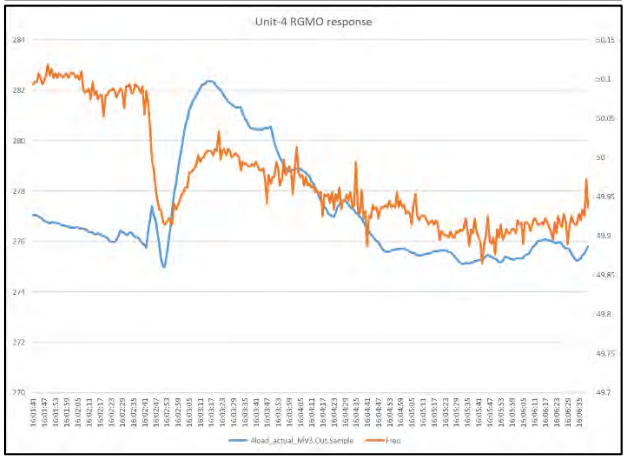
JITPL

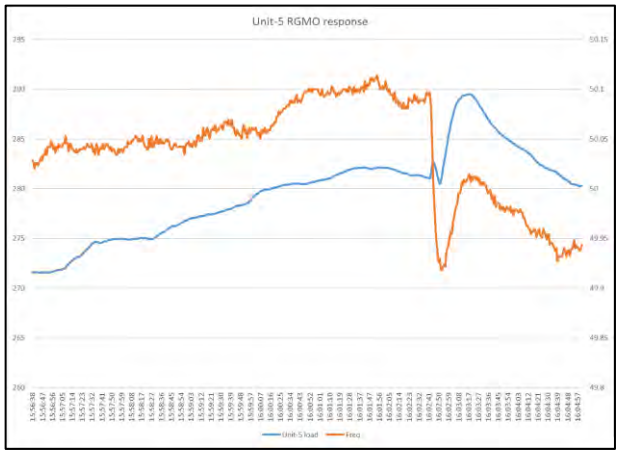


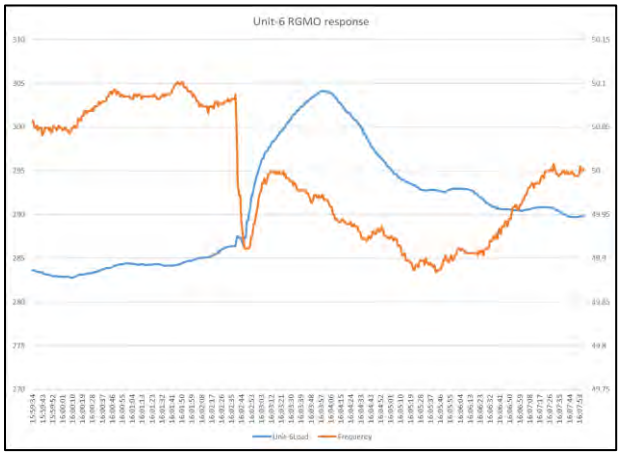
NTPC Farakka



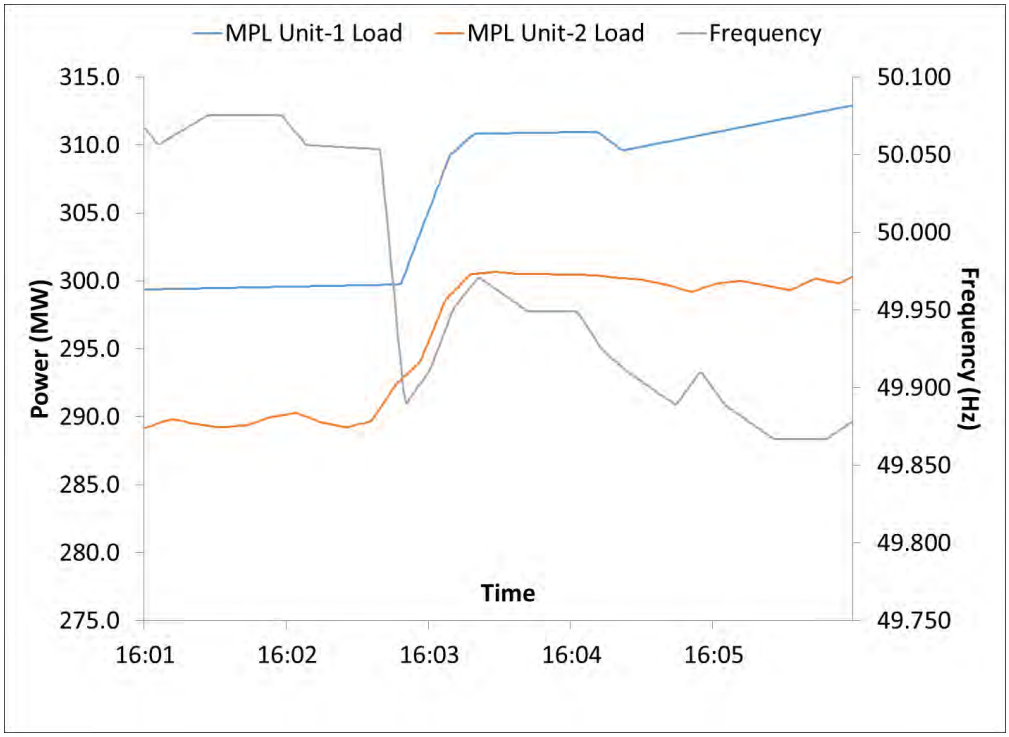




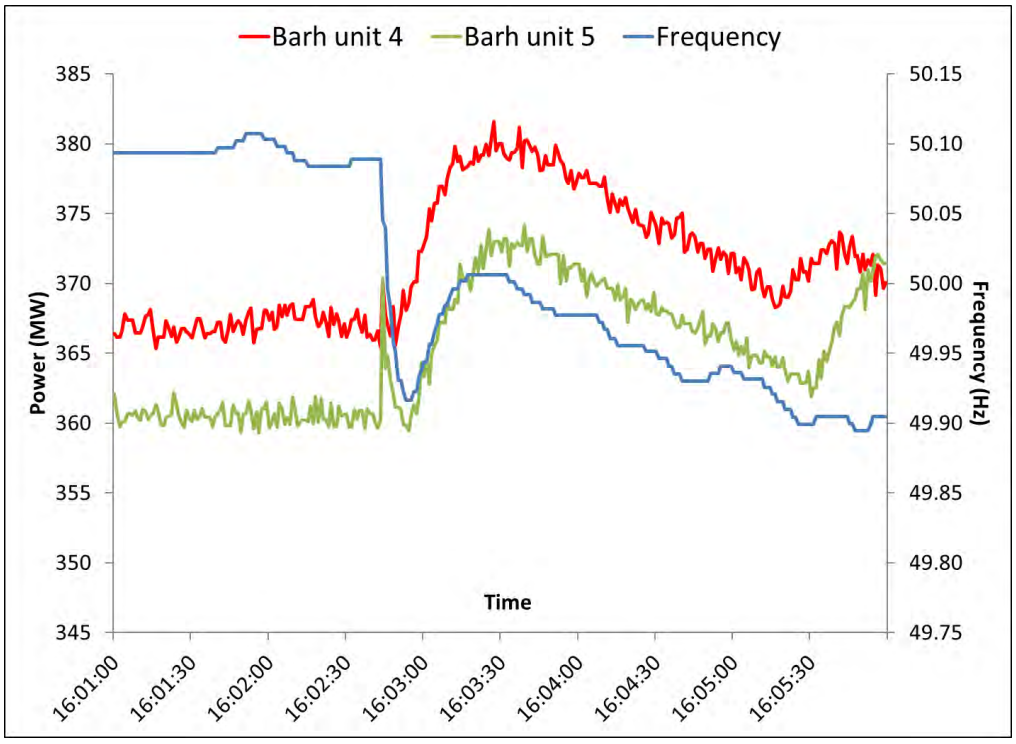




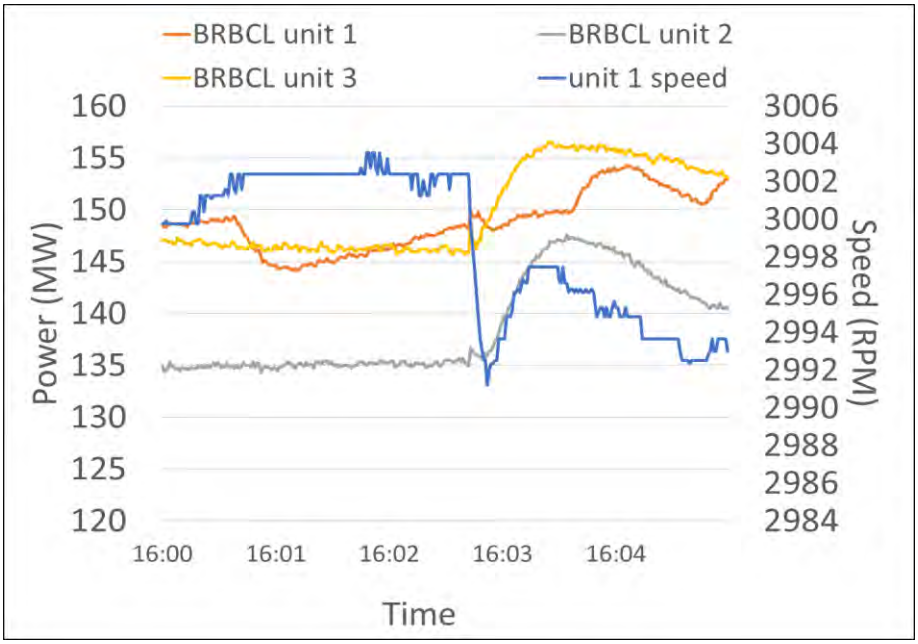
MPL



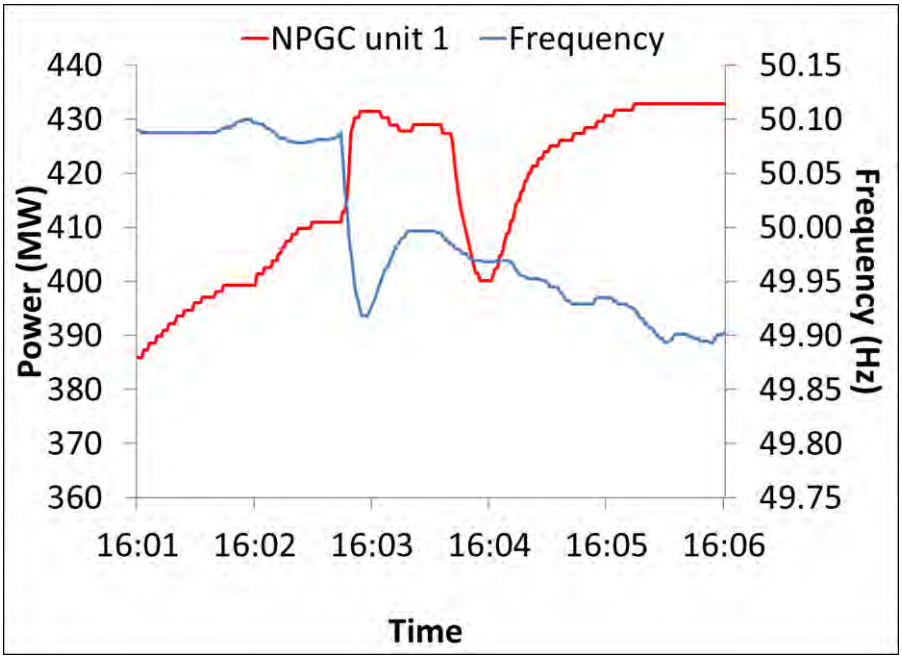
NTPC Barh



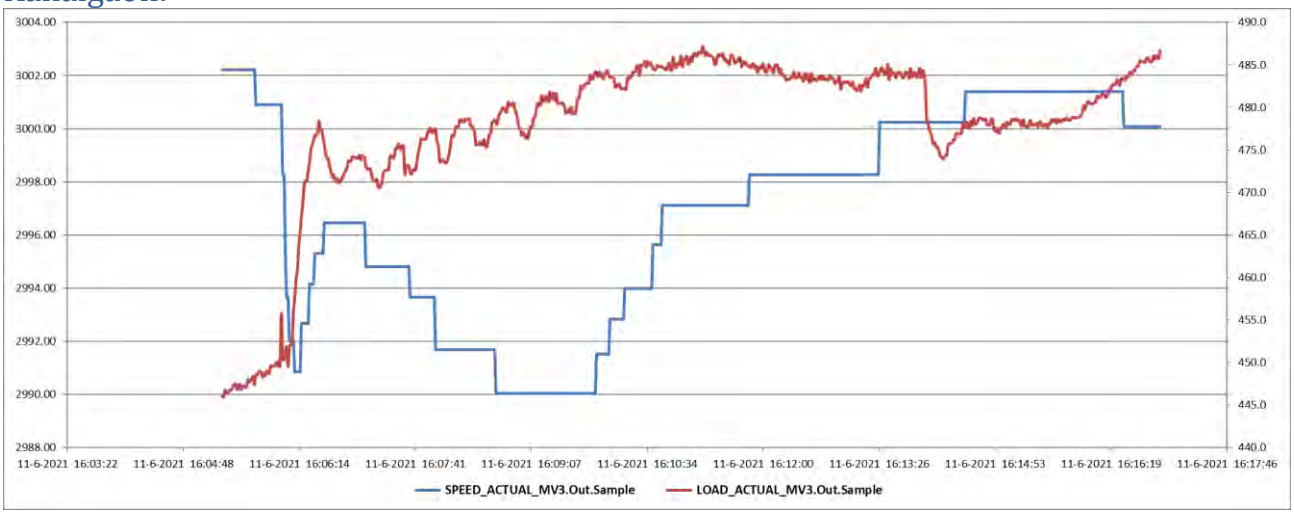
BRBCL

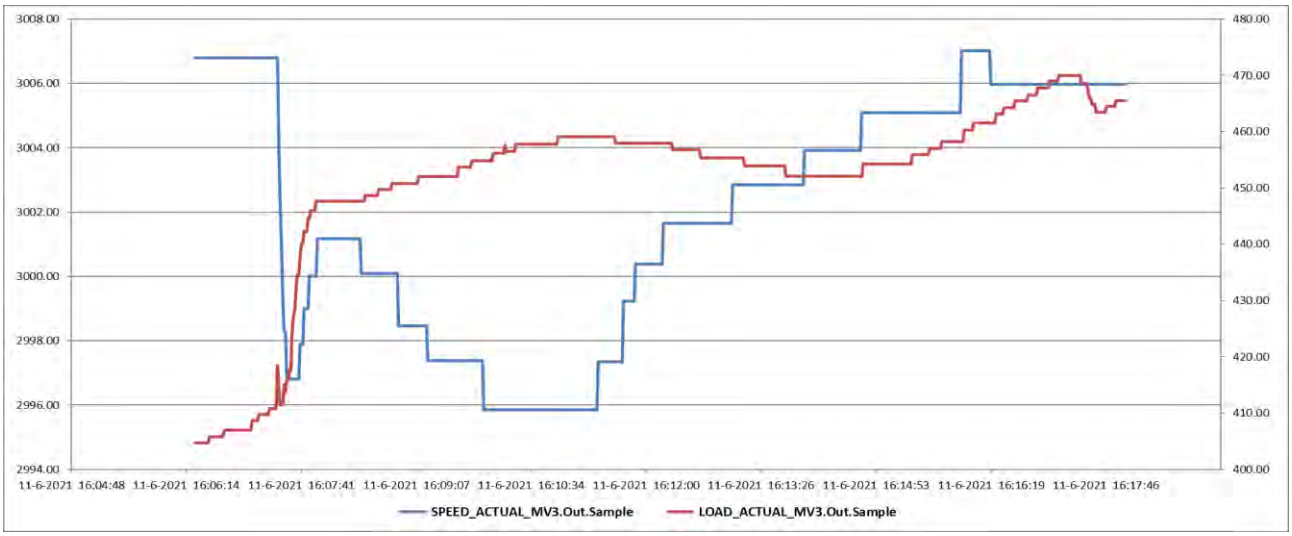

BRBCL unit 1
BRBCL unit 2
BRBCL unit 3
unit 1 speed
Power (MW)
Speed (RPM)
160
155
150
145
140
135
130
125
120
3006
3004
3002
3000
2998
2996
2994
2992
2990
2988
2986
2984
16:00
16:01
16:02
16:03
16:04
Time

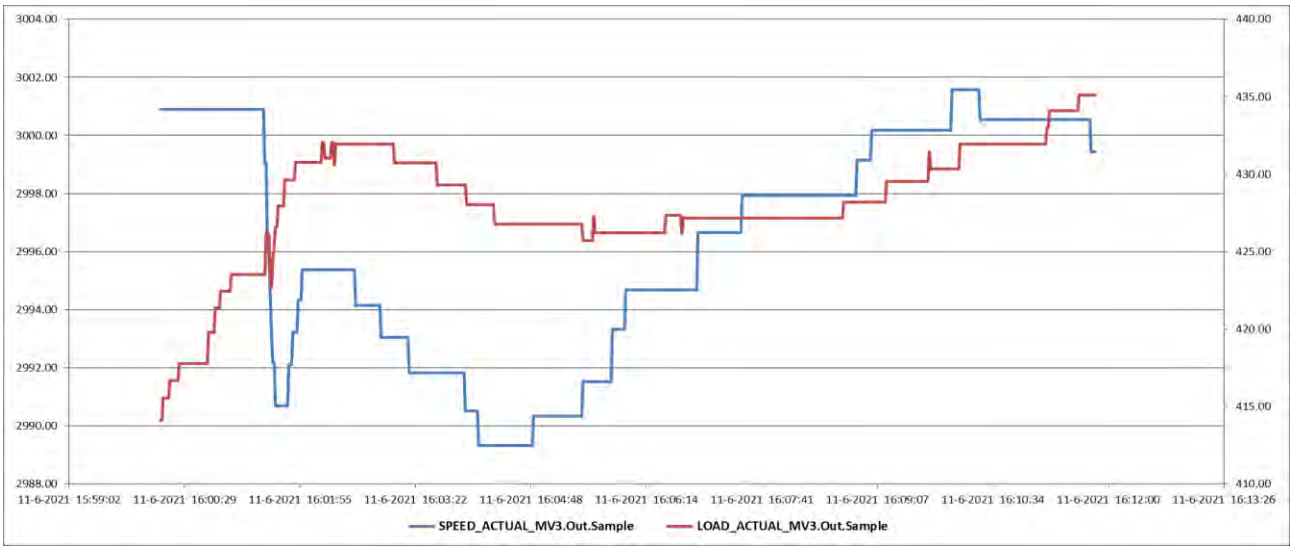
NPGC


NPGC unit 1
Frequency
Power (MW)
Frequency (Hz)
440
430
420
410
400
390
380
370
360
50.15
50.10
50.05
50.00
49.95
49.90
49.85
49.80
49.75
16:01
16:02
16:03
16:04
16:05
16:06
Time

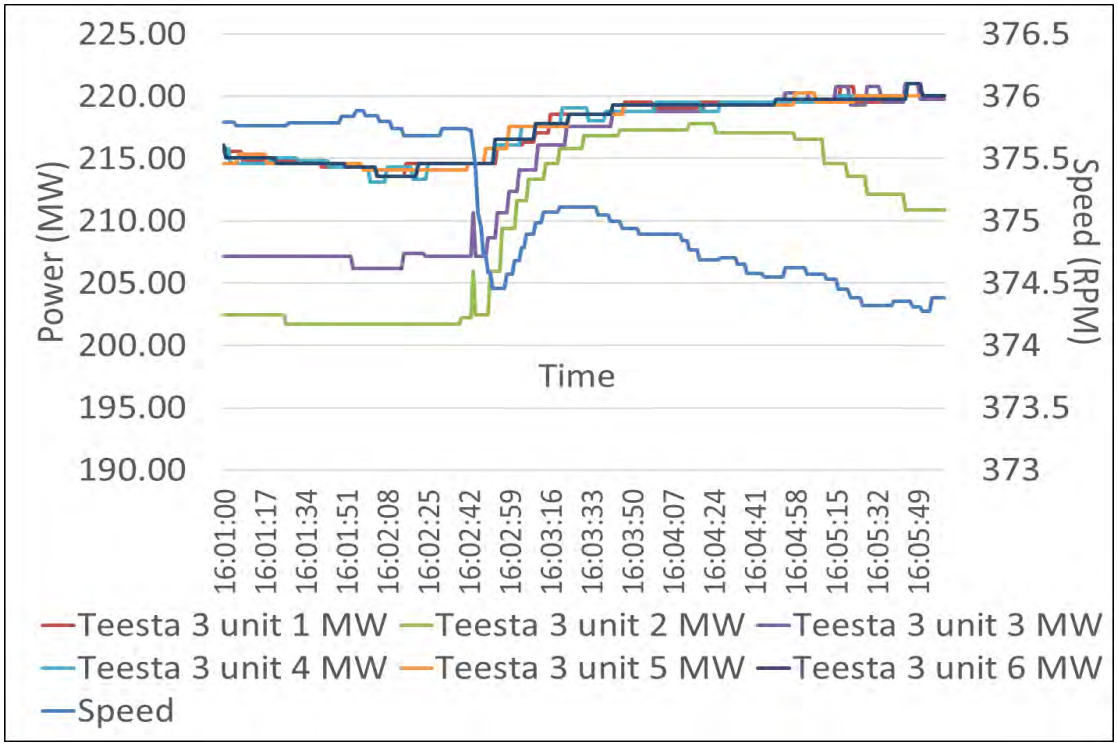
Kahalgaon:


3004.00
3002.00
3000.00
2998.00
2996.00
2994.00
2992.00
2990.00
2988.00
490.0
485.0
480.0
475.0
470.0
465.0
460.0
455.0
450.0
445.0
440.0
11-6-2021 16:03:22
11-6-2021 16:04:48
11-6-2021 16:06:14
11-6-2021 16:07:41
11-6-2021 16:09:07
11-6-2021 16:10:34
11-6-2021 16:12:00
11-6-2021 16:13:26
11-6-2021 16:14:53
11-6-2021 16:16:19
11-6-2021 16:17:46
SPEED_ACTUAL_MV3.Out.Sample
LOAD_ACTUAL_MV3.Out.Sample


3008.00
3006.00
3004.00
3002.00
3000.00
2998.00
2996.00
2994.00
480.00
470.00
460.00
450.00
440.00
430.00
420.00
410.00
400.00
11-6-2021 16:04:48
11-6-2021 16:06:14
11-6-2021 16:07:41
11-6-2021 16:09:07
11-6-2021 16:10:34
11-6-2021 16:12:00
11-6-2021 16:13:26
11-6-2021 16:14:53
11-6-2021 16:16:19
11-6-2021 16:17:46
SPEED_ACTUAL_MV3.Out.Sample
LOAD_ACTUAL_MV3.Out.Sample


3004.00
3002.00
3000.00
2998.00
2996.00
2994.00
2992.00
2990.00
2988.00
440.00
435.00
430.00
425.00
420.00
415.00
410.00
11-6-2021 15:59:02
11-6-2021 16:00:29
11-6-2021 16:01:55
11-6-2021 16:03:22
11-6-2021 16:04:48
11-6-2021 16:06:14
11-6-2021 16:07:41
11-6-2021 16:09:07
11-6-2021 16:10:34
11-6-2021 16:12:00
11-6-2021 16:13:26
SPEED_ACTUAL_MV3.Out.Sample
LOAD_ACTUAL_MV3.Out.Sample

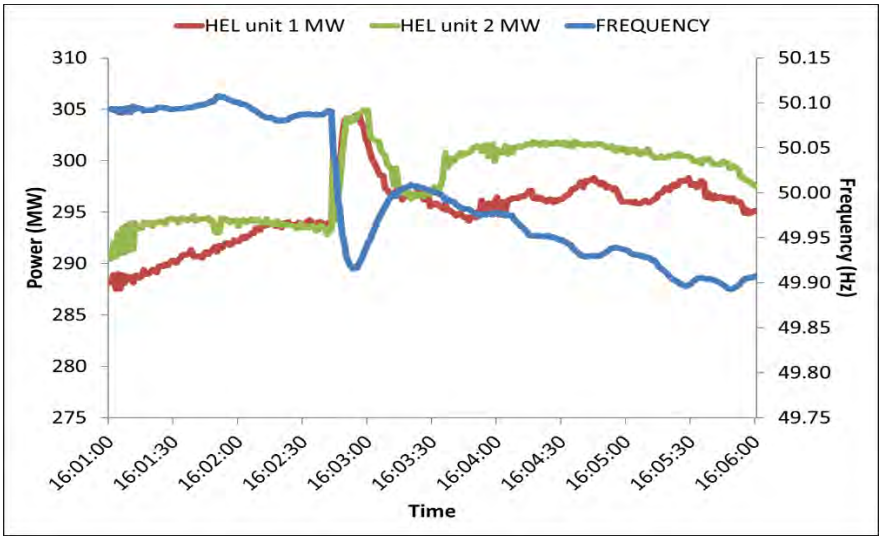
Teesta III:



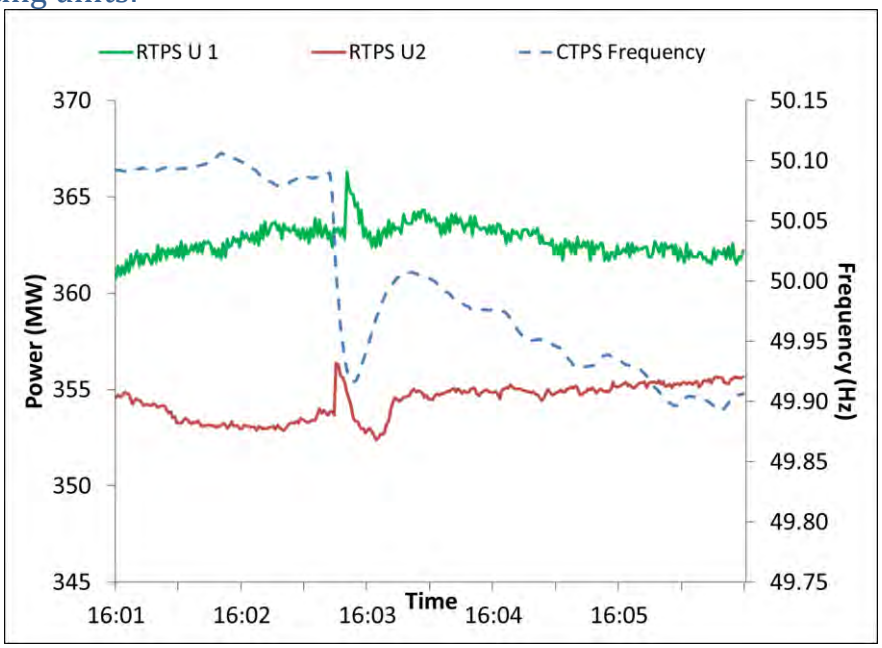
Annexure 2: Variation of generation of state generating units during frequency change

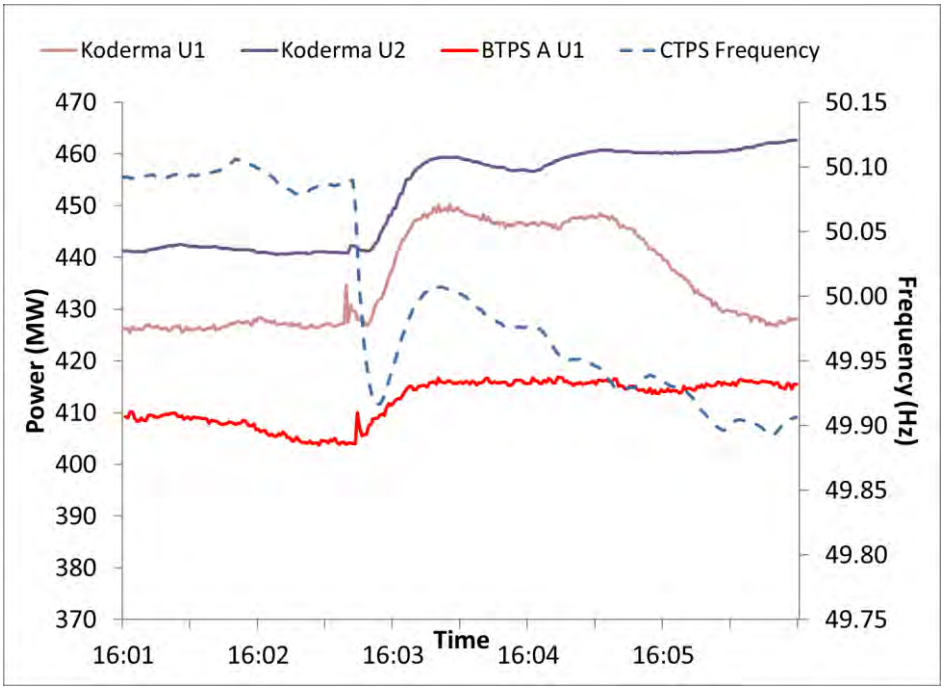
BBGS:

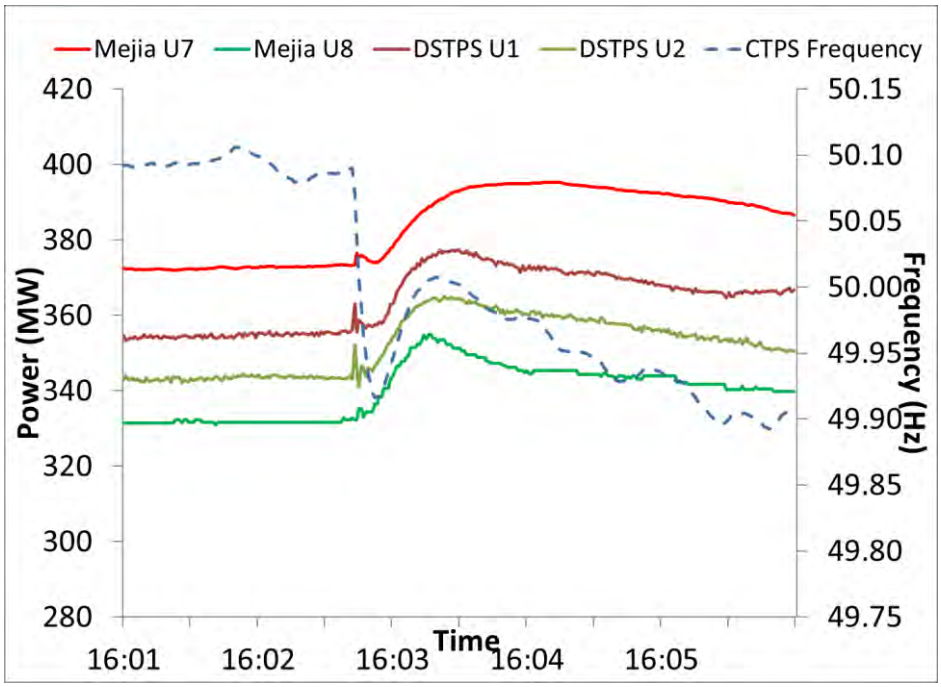
HEL:

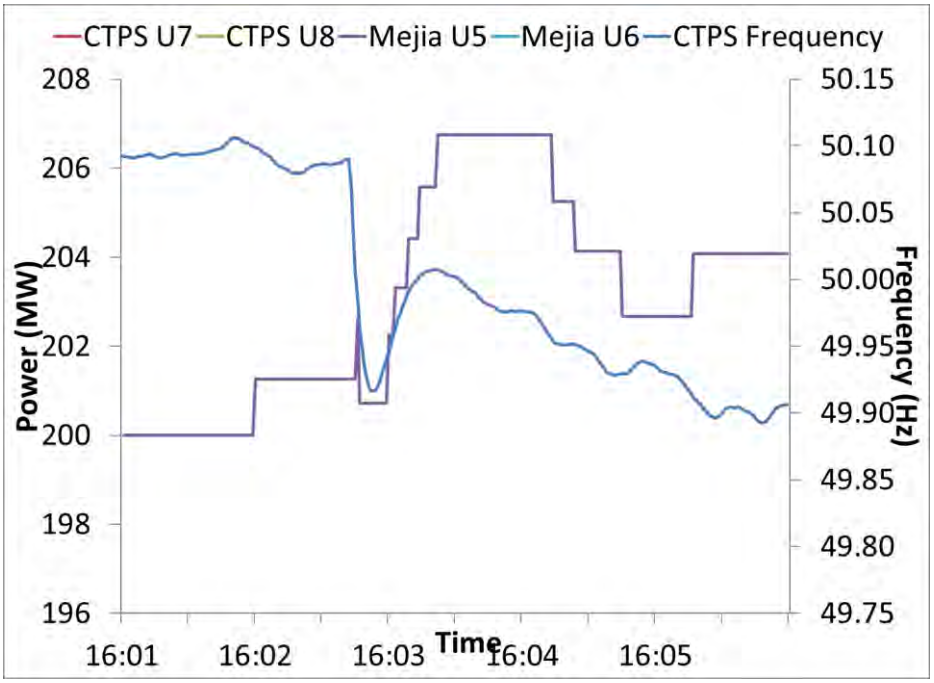


DVC generating units:




Koderma U1
Koderma U2
BTPS A U1
CTPS Frequency
470
460
450
440
430
420
410
400
390
380
370
Power (MW)
50.15
50.10
50.05
50.00
49.95
49.90
49.85
49.80
49.75
Frequency (Hz)
16:01
16:02
16:03
16:04
16:05
Time


Mejia U7
Mejia U8
DSTPS U1
DSTPS U2
CTPS Frequency
420
400
380
360
340
320
300
280
Power (MW)
50.15
50.10
50.05
50.00
49.95
49.90
49.85
49.80
49.75
Frequency (Hz)
16:01
16:02
16:03
16:04
16:05
Time


CTPS U7
CTPS U8
Mejia U5
Mejia U6
CTPS Frequency
208
206
204
202
200
198
196
Power (MW)
50.15
50.10
50.05
50.00
49.95
49.90
49.85
49.80
49.75
Frequency (Hz)
16:01
16:02
16:03
16:04
16:05
Time

Annexure 3: FRC shared by DVC SLDC

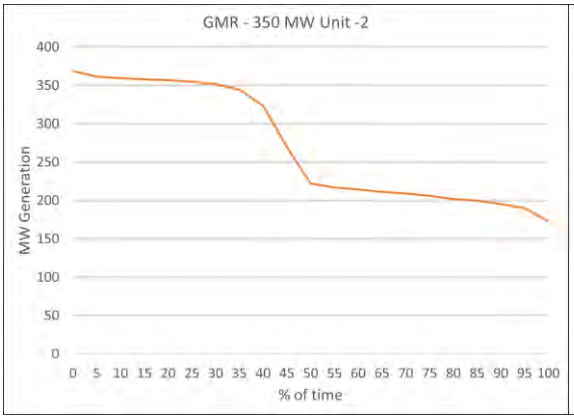
Frequency Response Characteristic Calculation in Eastern Region			
	On 11th June 2021 at 16:02:42:120 hrs, RE generation loss of around 1500 MW occurred at AKAL & Jaisalmir S/S. It led to the frequency drop from 50.09 Hz to 49.92 Hz at nadir point		
S No	Pariculars	Dimension	DVC Interchange
1	Actual Net Interchange before the Event (16:02:50)	MW	-1664
2	Actual Net Interchange before the Event (16:04:00)	MW	-1831
3	Change in Net Interchange (2 - 1)	MW	-166.9
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	0.0
5	Control Area Response (3 - 4)	MW	-166.9
6	Frequency before the Event	HZ	50.05
7	Frequency after the Event	HZ	49.96
8a	Change in Frequency (7 - 6)	HZ	-0.099
8	Effective change in Frequency considering RGMO *	HZ	-0.099
9	Frequency Response Characteristic (5 / 8)	MW/HZ	1692
10	Net System Demand met before the Event	MW	2653
11	Internal Generation before the Event (10 - 1)	MW	4317
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	106.1
13	Ideal generator response assuming 5% droop…….40% per Hz (40% of Row 11)	MW/Hz	1727.0
14	Composite ideal response (12 + 13)	MW/Hz	1833.1
15	Percentage of ideal response {(9/14)x100}	%	92.3%
gen/load			-1
	* In RGMO mode, generation should not be reduced for load throw off when freq <= 50 Hz		
	Note: +ve exchange=> import; (-)ve exchange => export		
	Talcher Stage II generation is considered inside ER for calculating Regional FRC.		
	As ISGS is generating Power (Hence Export), -Ve value is shown for their power exchange		

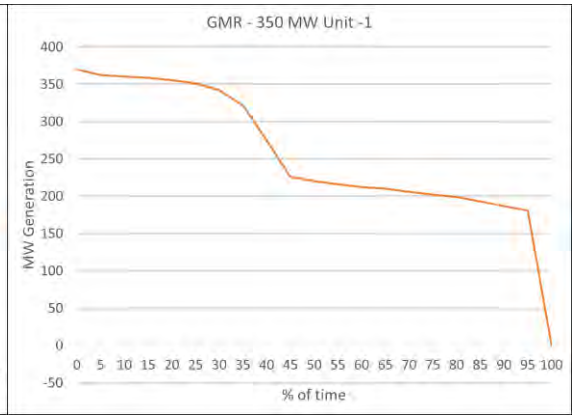
Annexure 4: FRC shared by GRIDCO SLDC

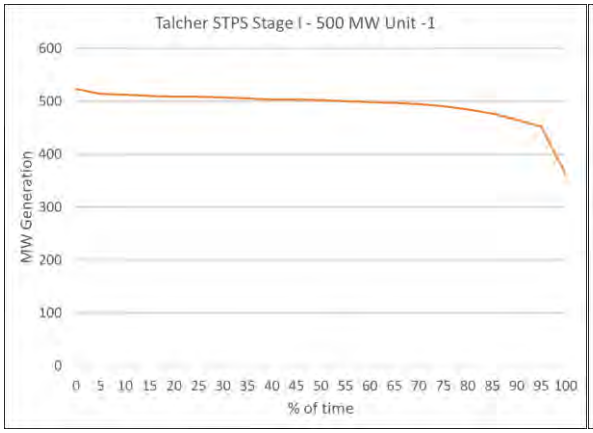
Frequency Response Characteristic Calculation in GRIDCO control			
	On 11th June 2021 at 16:02:42:120 hrs, RE generation loss of around 1500 MW occurred at AKAL & Jaisalmir S/S. It led to the frequency drop from 50.09 Hz to 49.92 Hz at nadir point. Later it stabilized at 50.00 Hz.		
S No	Pariculars	**Dimension**	**GRIDCO Interchange**
1	Actual Net Interchange before the Event (16:02:42)	**MW**	1675
2	Actual Net Interchange after the Event (16:03:12)	**MW**	1632
3	Change in Net Interchange (2 - 1)	**MW**	-42.9
4	Generation Loss (+) / Load Throw off (-) during the Event	**MW**	0.0
5	Control Area Response (3 - 4)	**MW**	-42.9
6	Frequency before the Event	**HZ**	50.09
7	Frequency after the Event	**HZ**	50.00
8a	Change in Frequency (7 - 6)	**HZ**	-0.091
8	Effective change in Frequency considering RGMO *	**HZ**	-0.091
9	Frequency Response Characteristic (5 / 8)	**MW/HZ**	469
10	Net System Demand met before the Event	**MW**	4124
11	Internal Generation before the Event (10 - 1)	**MW**	2449
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	**MW/Hz**	165.0
13	Ideal generator response assuming 5% droop…….40% per Hz (40% of Row 11)	**MW/Hz**	979.7
14	Composite ideal response (12 + 13)	**MW/Hz**	1144.6
15	Percentage of ideal response {(9/14)x100}	**%**	41.0%

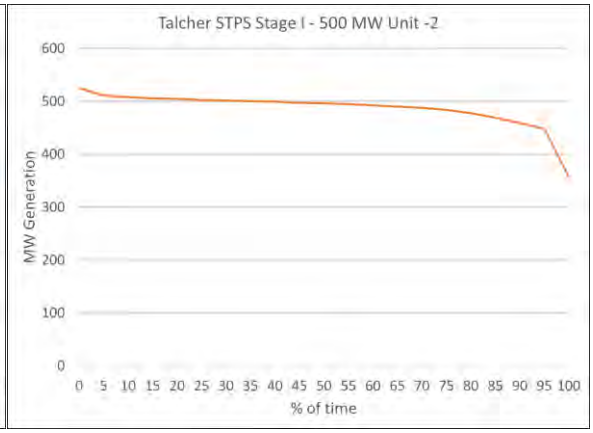
Annexure-C3

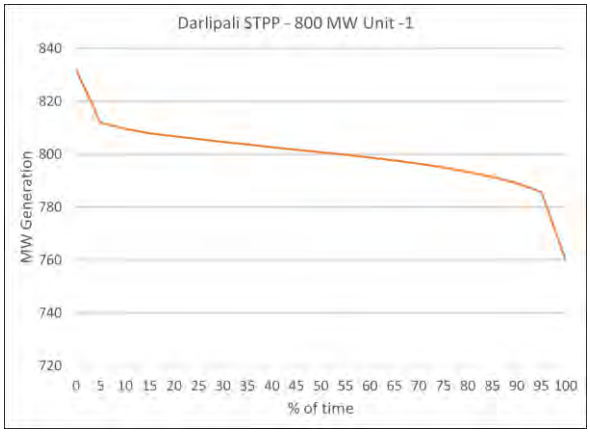
Generation duration curve of thermal generating units with injection more than MCR during 01st July to 12th July 2021











Annexure-C4

Date of PFR testing scheduled /completed for generating stations in ER

Sr. No	Station	Generating Unit	Test schedule	Remarks
1	TALCHER STAGE 2	3	Unit 3 - 5: 23-11-2020 to 28-11-2020	Testing for unit 6 yet to be conducted
2		4		
3		5		
4		6		
5	Farakka	2	01-02-2021 to 10-01-2021	Testing completed
6		3		
7		4		
8		5		
9		6		
10	Kahalgaon	1	23-02-2021 to 02-03-2021	Scheduled
11		5		
12		6		
13		7		
14	Barh	4	18-02-2021 to 21-02-2021	Scheduled
15		5		
16	Teesta V	1	07-01-2021 - 08-01-2021	Testing completed
17	Teesta III	1	30-01-2021 - 10-02-2021	Testing completed
18		2		
19		3		
20		4		
21		5		
22		6		
23	Dikchu	1	Unit#1: 6th & 7th April' 21 Unit#2: 8th & 9th April' 21	Scheduled
24		2		
25	MPL	1	-	Postponed due to some technical issue
26		2		
27	GMR	1	August 21	Scheduled
28		2		
29		3		
30	JITPL	1	August 21	Scheduled
31		2		
32		3		
33	NPGCL	1	2nd August'21 To 3rd August'21	Scheduled
34	BRBCL		1st Week of August'21	

Annexure-C6

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	1	No	Yes	Long Back	No	Yes	Under retirement
Kolaghat-WBPDCL	2	No	Yes	Long Back	No	Yes	Under retirement
Kolaghat-WBPDCL	3	No	Yes	Long Back	No	Yes	When Unit will be on Bar
Sagardighi-WBPDCL	2	No	No	Long Back	No	Yes	When Unit will be on Bar
Bakreshwar-WBPDCL	2	Yes	Yes	2019	Yes	Yes	Retuning to be done as from plot response is not good
Bakreshwar-WBPDCL	3	Yes	Yes	2019	Yes	Yes	Retuning to be done as from plot response is not good
Bakreshwar-WBPDCL	4	Yes	Yes	2019	Yes	Yes	Retuning to be done as from plot response is not good
Bakreshwar-WBPDCL	5	Yes	Yes	2019	Yes	Yes	Retuning to be done as from plot response is not good
DPL	7	No	No	N.A	No	Yes	Planned in March 2021
DPL	8	No	Yes	No	No Detail	Yes	To be updated by WBPDCL/DPL
PPSP	1	No	Yes	2009	No	Yes	To be updated by WBSEDCL
PPSP	2	No	Yes	2009	No	Yes	To be updated by WBSEDCL
PPSP	3	No	Yes	2009	No	Yes	To be updated by WBSEDCL
PPSP	4	No	Yes	2009	No	Yes	To be updated by WBSEDCL
TLDP III	4 x 33			No Detail	No Detail	Yes	To be updated by WBSEDCL
TLDP IV	4 X 44			No Detail	No Detail	Yes	To be updated by WBSEDCL
CESC							
Budge Budge-CESC	1	Yes	Yes	2015	No	Yes	2021-22
Budge Budge-CESC	2	Yes	Yes	2015	No	Yes	2021-22
DVC							
Bokaro B 210 MW	3				No Detail	Yes	Unit Is out of Service
Mejia-DVC	4	Yes	Yes	2009	No	Yes	Jun-21
Raghunathpur-DVC	1	No	No		No Detail	Yes	Will be done after AOH
Raghunathpur-DVC	2	No	No		No Detail	Yes	Jun-21
Koderma-DVC	1	Yes	Yes	2013	No	Yes	Sep-21
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	2	Yes	Yes	2018	Yes	Yes	April 2021 (During AOH)
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
Talcher Stage 2	3	Yes	Yes	2016	Yes	Yes	July 2021 (As per SRPC decision)
Talcher Stage 2	4	Yes	Yes	No Details	No Details	Yes	July 2021 (As per SRPC decision)
Talcher Stage 2	5	Yes	Yes	No Details	No Details	Yes	July 2021 (As per SRPC decision)
Talcher Stage 2	6	Yes	Yes	2016	Yes	Yes	July 2021 (As per SRPC decision)
Barh NTPC	4			2015		Yes	In Next AOH
Barh NTPC	5			During Unit commissioning		Yes	June 2021 (AOH)
Teesta V	1	Yes	Yes	2008	No	Yes	Jun-21
Teesta V	2	Yes	Yes	2008	No	Yes	Jun-21
Teesta V	3	Yes	Yes	2008	No	Yes	Jun-21
BRBCL	1	No	Yes	Vendor to Do	No	Yes	Jun-21
BRBCL	2	Yes	Yes	2019	Yes	Yes	Jun-21
BRBCL	3	No	Yes	Vendor to Do	No	Yes	Jun-21
KBUNL	1	Yes	Yes	2014	No	Yes	2021-22
KBUNL	2	Yes	Yes	2014	No	Yes	2021-22
KBUNL	3	Yes	Yes	Not Available	No	Yes	2021-22
KBUNL	4	Yes	Yes	Not Available	No	Yes	2021-22
Rangit	3 x 20			Not Available	No	Yes	To be updated by NHPC
IPP							
Jorethang	1	Yes	Yes	2015	No	Yes	Apr-21
Jorethang	2	Yes	Yes	2015	No	Yes	Apr-21
ADHUNIK	1	Yes	YES	2013	No	Yes	Aug-21
ADHUNIK	2	Yes	YES	2013	No	Yes	Aug-21
JITPL	1	Yes	Yes	2016	Yes	Yes	Jul-21
JITPL	2	Yes	Yes	2016	Yes	Yes	Jul-21
GMR	1	Yes	Yes	2013	No	Yes	May-21
GMR	2	Yes	Yes	2013	No	Yes	May-21
GMR	3	Yes	Yes	2013	No	Yes	May-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	To be updated by OHPC
Upper Kolab	2	Yes	Yes	2007	No	Yes	To be updated by OHPC
Upper Kolab	3	Yes	Yes	2007	No	Yes	To be updated by OHPC
Upper Kolab	4	Yes	Yes	2007	No	Yes	To be updated by OHPC
Rengali	1	Yes	Yes	Not tuned	No	Yes	To be updated by OHPC
Rengali	2	Yes	Yes	Not tuned	No	Yes	To be updated by OHPC
Rengali	3	Yes	Yes	Not tuned	No	Yes	To be updated by OHPC
Rengali	4	Yes	Yes	Not tuned	No	Yes	To be updated by OHPC
Rengali	5	No	Yes	Not tuned	No	Yes	To be updated by OHPC
Sterlite	4 X 600			No detail		Yes	To be updated by SLDC Orissa
Jharkhand							
Tenughat	1	Yes	Yes	2017	Yes	Yes	No report has been submitted. So tuning to be planned
Tenughat	2	Yes	Yes	2017	Yes	Yes	No report has been submitted. So tuning to be planned
Subarnrekha	2 X 65					Yes	To be updated
Bihar							
BTPS	6 (110)					Yes	To be updated by BSPGCL
BTPS	7 (110)					Yes	To be updated by BSPGCL
BTPS	8					Yes	To be updated by BSPGCL
BTPS	9					Yes	To be updated by BSPGCL
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	To be updated by BPC
Mangdechu	2	No	Yes			Yes	To be updated by BPC
Mangdechu	3	No	Yes			Yes	To be updated by BPC
Mangdechu	4	No	Yes			Yes	To be updated by BPC

पावर सिस्टम ऑपरेशन कॉर्पोरेशन लिमिटेड
(भारत सरकार का उद्यम)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A Govt. of India Enterprise)
केन्द्रीय कार्यालय : 61, आई एफ सी आई टावर, 8 एवं 9वीं मंजिल, नेहरु प्लेस, नई दिल्ली -110019
Corporate Office : 61, IFCI Tower, 8 & 9th Floor, Nehru Place, New Delhi - 110019
CIN : U40105DL2009GOI188682, Website : www.posoco.in, E-mail : posococc@posoco.in, Tel.: 011- 40234672

संदर्भ/Ref: पोसोको/आरपीओ POSOCO/RPO/ **दिनांक/Date: 02.06.2021**

सेवा मे/To,

To

As per distribution list

विषय/Subject: Request for details regarding Compliance of Renewable Purchase Obligation (RPO)

Sir,

This is for your kind information that Ministry of Power (MoP), Govt. of India vide order dated 29.01.2021 (copy enclosed), notified RPO Trajectory till FY 2021-22, which includes long term trajectory for Hydro Power Obligation (HPO) also. In addition, Para No. (17) of MoP Order dated 29.01.2021, stipulates POSOCO to maintain data related to compliance of RPOs. The matter of monitoring of RPO compliance has taken a high priority and regularly monitored by the MoP and MNRE.

As you are aware the Obligated entities for RPO compliance are Distribution Licensees, Open Access Consumers, Captive Power Plants etc. are intra-State entities. As per Electricity Act 2003, State Load Despatch Centres are the Apex body for ensuring integrated grid operation within the State and have the statutory responsibility for keeping energy account in regard to intra-State entities.

Therefore, in order to facilitate compilation of details related to RPO compliance, it is hereby requested to advise the concerned officers in your SLDCs to provide the following details pertaining to RPO Compliance:

- List of Obligated Entities viz.
  - Distribution Licensees (DISCOMs)
  - Open Access (OA) consumers
  - Captive Power Plant (CPP)
  - Any other consumer opting for both OA & CPP and it is not covered above
- Energy Consumption details (with breakup of own generation, central sector scheduled requisition, import and export from other states) of aforementioned Obligated Entities viz.
  - Total Energy Consumption (MU)
  - Energy Consumption (MU) using large hydro projects (Capacity above 25MW and commissioned before 08.03.2019)
  - Energy Consumption (MU) using solar projects
  - Energy Consumption (MU) using non-solar projects including Small Hydro

-2/--

- Energy Consumption (MU) using large hydro projects (Capacity above 25MW and commissioned after 08.03.2019)

It is requested to advise the concerned to provide the RPO compliance status of Obligated Entities for complete FY 2020-21 at the earliest, in the enclosed format (this is in line with the format exercised by MNRE presently except for minor modification in line with MoP order dated 29.01.2021 to include HPO).

Along with the aforementioned details, please advise the concerned to timely (within one month from the end of quarter) provide the quarterly RPO compliance status of Obligated Entities for FY 2021-22 to following nodal persons from POSOCO for RPO compliance monitoring in an effective manner and onward submission of information to MOP and MNRE.

The Energy Consumption details and RPO compliance status is to be sent to following nodal persons from POSOCO:

- Shri Manas Das, Chief Manager, ERLDC (Email: manasdas@posoco.in, Mob.: 09007070925)
- Shri Kailash Chand Saini, Chief Manager, NLDC (Email: kcsaini@posoco.in, Mob:08800690951)

We request your kind co-operation and this regard and once again request to advise the concerned for timely submission of RPO compliance report.

This is for kind information and perusal, please.

सादर धन्यवाद / Thanking you,

भवदीय / Yours faithfully

(मीनाक्षी गर्ग / Minaxi Garg)
Executive Director (RE, CP, C&M), CC, POSOCO

संलग्न/ Enclosed: उपरोक्त / As above

Copy to: Shri D. K. Jain, Executive Director, Eastern Regional Load Despatch Centre, 14, Golf Club Road, Tollygunge, Kolkata -700 033

Distribution List (SLDC)

(1) Shri Arun Kumar Chaudhary
GM-cum-CE
State Load Despatch Centre
Bihar State Electricity Board, Vidyut Bhawan,
Bailey Road, Patna, Bihar – 800001

(2) Shri Vidya Sagar Singh
General Manager,
State Load Despatch Centre
Jharkhand Urja Sancharan Nigam Ltd., Kushai Colony, Doranda,
Ranchi, Jharkhand – 834002

(3) Er. Prasanta Kumar Satpathy
Senior General Manager,
State Load despatch Centre
OPTCL, Gridco Colony, P.O- Mancheswar Railway Colony,
BBSR, Bhubaneshwar, Odisha – 751070

(4) Shri Dinesh Kharel
Chief Engineer
State Load despatch Centre
Energy and Power Department, Govt. of Sikkim,
Kazi Road, Gangtok, Sikkim – 737201

(5) Shri P. K. Kundu
Chief Engineer
West Bengal State Load Despatch Centre
P.O. Danesh Seikh Lane, Andul Road,
Howrah, West Bengal – 711109

(6) Chief Engineer
SLDC, Damodar Valley Corporation (DVC), Howrah
31/1 Andul road, P.O: Danish Seikh lane,
Howrah, West Bengal – 711109

No. 23/03/2016-R&R
Government of India
Ministry of Power
***

Shram Shakti Bhawan, New Delhi,
Dated, the 29th January, 2021

ORDER

Subject: Renewable Purchase Obligation (RPO) trajectory - regarding.

1. In exercise of the powers conferred under section 3(3) of Electricity Act, 2003, the Central Government had notified the revised Tariff Policy, which was published in Gazette of India, Extraordinary, Part-I, Section-1 dated 28.01.2016.

2. Para 6.4(1) of the Tariff Policy 2016 provides as follows:

"Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. Long term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE.

Provided that cogeneration from sources other than renewable sources shall not be excluded from the applicability of RPOs."

3. In light of para 6.4(1) of the Tariff Policy 2016, and with the objective of creating renewable power capacity of 175 GW by March, 2022; the Ministry of Power, after consultation with Ministry of New and Renewable Energy, had notified the long term trajectory of Renewable Purchase Obligations (RPOs) for solar and non-solar power vide its orders dated 22nd July 2016 and 14th June 2018.

4. On 8th March 2019, the Government had issued an order detailing various policy measures to promote hydropower sector in India inter-alia declaring large hydropower projects including pumped storage projects having capacity of more than 25 MW (LHPs) which come into commercial operation after 8.3.2019 as renewable energy source and to specify Hydropower Purchase Obligation (HPO) within Non-Solar Renewable Purchase Obligation (RPO).

5. In compliance of the above decision and with the objective to add 30,000 MW of hydropower capacity by the year 2029-2030, Ministry of Power has prepared a revised trajectory of RPO including long term trajectory for HPO considering the LHPs commissioned after 8th March, 2019.

6. In super-session of orders dated 22nd July 2016 and 14th June 2018, the Ministry of Power hereby specifies the following RPO Trajectory-

Year	Solar RPO	Non-Solar RPO			Total RPO
		HPO	Other Non-Solar RPO	Total Non- Solar RPO	
2019-20	7.25%	-	10.25%	10.25%	17.50%
2020-21	8.75%	-	10.25%	10.25%	19%
2021-22	10.50%	0.18%	10.50%	10.68%	21.18%
2022-23	To be specified later	0.35%	To be specified later	To be specified later	To be specified later
2023-24		0.66%			
2024-25		1.08%			
2025-26		1.48%			
2026-27		1.80%			
2027-28		2.15%			
2028-29		2.51%			
2029-30		2.82%			

7. RPO shall be calculated in energy terms as a percentage of total consumption of electricity excluding consumption met from hydro sources (LHPs).

8. Solar RPO may be met by power produced from solar power plants – solar photo voltaic or solar-thermal.

9. Other Non-Solar RPO (excluding HPO), may be met from any renewable source other than solar and LHPs.

10. HPO benefits may be met from the power procured from eligible LHPs commissioned on and after 8.3.2019 and upto 31.03.2030 in respect of 70% of the total generated capacity for a period of 12 years from the date of commissioning. Free power is to be provided as per agreement with the State Government and that provided for Local Area Development Fund(LADF), shall not be included within this limit of 70% of the total generated capacity.

11. HPO liability of the State/ Discom could be met out of the free power being provided to the State from LHPs commissioned after 08.03.2019 as per agreement at that point of time excluding the contribution towards LADF if consumed within the State/Discom. Free power (not that contributed for Local Area Development) only to extent of HPO liability of the State/Discom, shall be eligible for HPO benefit.

12. In case the free power, as above, is insufficient to meet the HPO obligations, then the State would have to buy the additional hydro power to meet its HPO obligations or may

have to buy the corresponding amount of Hydro Energy Certificate to meet the non-solar hydro renewable purchase obligations.

13. The Hydro Energy Certificate mechanism under Regulation to be developed by CERC to facilitate compliance of HPO Obligation, would have a capping price of Rs.5.50/Unit of electrical energy w.e.f 8th March 2019 to 31st March, 2021 and with annual escalation @5% thereafter for purposes of ensuring HPO compliance.

14. The above HPO Trajectory shall be trued up on an annual basis depending on the revised commissioning schedule of Hydro projects. The HPO Trajectory for the period between 2030-31 and 2039-40 shall be notified subsequently.

15. Hydro power imported from outside India shall not be considered for meeting HPO.

16. On achievement of Solar RPO compliance to the extent of 85% and above, remaining shortfall, if any, can be met by excess non-solar energy consumed beyond specified Non-Solar RPO for that particular year. Similarly, on achievement of Other Non-Solar RPO compliance to the extent of 85% and above, remaining shortfall if any, can be met by excess solar or eligible hydro energy consumed beyond specified Solar RPO or HPO for that particular year. Further, on achievement of HPO compliance to the extent of 85% and above, remaining shortfall, if any, can be met by excess solar or other non–solar energy consumed beyond specified Solar RPO or Other Non-Solar RPO for that particular year.

17. POSOCO will maintain data related to compliance of RPOs.

18. Further the SERCs may consider to notify RPO trajectory including HPO for their respective States in line with aforesaid RPO trajectory. Moreover CERC may consider to devise suitable mechanism similar to Renewable Energy Certificate (REC) mechanism to facilitate fulfillment of HPO.

19. This issues with the approval of Minister of State (I/C) for Power.

(Ghanshyam Prasad)
Joint Secretary to the Government of India
Tele No. 23710389

To

1. Principal Secretary/Secretary (Power / Energy), State Governments/UTs.
2. Secretary, CERC/FOR, Chanderlok Building, Janpath, New Delhi
3. Secretary, State Electricity Regulatory Commissions/Joint Electricity Regulatory Commissions

Copy to:

1. Secretary, MNRE, CGO Complex, New Delhi
2. Chairperson, CEA, Sewa Bhawan, RK Puram, New Delhi

Copy also for information to:

1. All Joint Secretaries, Ministry of Power
2. PS to MOS (I/C) for Power & NRE and MoS for SDE.
3. Sr. PPS to Secretary (Power), PPS to AS(SKGR), PPS to AS(VKD), Sr.PPS to Sr. Advisor, Sr. PPS to JS (R&R), PS to DS(R&R)

Compliance Status of DISCOMs

Annexure-C11.2

Sr. No.	Name DISCOM	Address	Total Energy Consumption during FY (__-__) (in MWh)	Hydro Energy Consumption during FY (__-__) (in MWh)	Total Energy Consumption (-) Hydro Energy Consumption (A)	SN	RPO (%) specified by SERC		SERC RPO Target (in MWh) (B)	RE Procurement (in MWh) (C)	REC Purchased (D)	Total RE Procurement (in MWh) (E=C+D)	Surplus/ Deficit (in MWh) (F=E-B)	Actaual % RE Consumption (E) * 100 / (A)	RPO (%) prescribed as per MoP	Compliance as per State RPO (%)	Compliance as per MoP Trajectory RPO (%)
1						(1)	Solar										
						(2)	Non-solar										
						(3)	Hydro Renewable										
						(4)	Any Specific Non-solar RPO (%)										
						(5)	**Total Non-solar**										
						(6)	**Total**										

Compliance Status of Open Access (OA) Consumers

Sr. No.	Name OA Consumer (Capacity in MW)	Address	Total Energy Consumption during FY (__-__) (in MWh)	Hydro Energy Consumption during FY (__-__) (in MWh)	Total Energy Consumption (-) Hydro Energy Consumption (A)	SN	RPO (%) specified by SERC		SERC RPO Target (in MWh) (B)	RE Procurement (in MWh) (C)	REC Purchased + Self retained (D)	Total RE Procurement (in MWh) (E=C+D)	Surplus/ Deficit (in MWh) (F=E-B)	Actaual % RE Consumption (E) * 100 / (A)	RPO (%) prescribed as per MoP	Compliance as per State RPO (%)	Compliance as per MoP Trajectory RPO (%)
1						(1)	Solar										
						(2)	Non-solar										
						(3)	Hydro Renewable										
						(4)	Any Specific Non-solar RPO (%)										
						(5)	**Total Non-solar**										
						(6)	**Total**										

Compliance Status of Captive Power Plant (CPP) Consumers

Sr. No.	Name of CPP Consumer (Capacity in MW)	Address	Total Energy Consumption during FY (__-__) (in MWh)	Hydro Energy Consumption during FY (__-__) (in MWh)	Total Energy Consumption (-) Hydro Energy Consumption (A)	SN	RPO (%) specified by SERC		SERC RPO Target (in MWh) (B)	RE Procurement (in MWh) (C)	REC Purchased + Self retained (D)	Total RE Procurement (in MWh) (E=C+D)	Surplus/ Deficit (in MWh) (F=E-B)	Actaual % RE Consumption (E) * 100 / (A)	RPO (%) prescribed as per MoP	Compliance as per State RPO (%)	Compliance as per MoP Trajectory RPO (%)
1						(1)	Solar										
						(2)	Non-solar										
						(3)	Hydro Renewable										
						(4)	Any Specific Non-solar RPO (%)										
						(5)	**Total Non-solar**										
						(6)	**Total**										

Cumulative Compliance Status of the State

Sr. No.	Name of State	Total Energy Consumption during FY (__-__) (in MWh)	Hydro Energy Consumption during FY (__-__) (in MWh)	Total Energy Consumption (-) Hydro Energy Consumption (A)	SN	RPO (%) specified by SERC		SERC RPO Target (in MWh) (B)	RE Procurement (in MWh) (C)	REC Purchased + Self retained (D)	Total RE Procurement (in MWh) (E=C+D)	Surplus/ Deficit (in MWh) (F=E-B)	Actaual % RE Consumption (E) * 100 / (A)	RPO (%) prescribed as per MoP	Compliance as per State RPO (%)	Compliance as per MoP Trajectory RPO (%)
1	MNO				(1)	Solar										
					(2)	Non-solar										
					(3)	Hydro Renewable										
					(4)	Any Specific Non-solar RPO (%)										
					(5)	**Total Non-solar**										
					(6)	**Total**										

Anticipated Peak Demand (in MW) of ER & its constituents for August 2021 (Annx.D1)

1	BIHAR	Demand (MW)	Energy Requirement (MU)
	NET MAX DEMAND	6450	3950
	NET POWER AVAILABILITY- Own Sources	690	190
	Central Sector+Bi-Lateral	5728	3175
	SURPLUS(+)/DEFICIT(-)	-32	-585
2	**JHARKHAND**		
	NET MAXIMUM DEMAND	1550	965
	NET POWER AVAILABILITY- Own Source	320	146
	Central Sector+Bi-Lateral+IPP	1150	715
	SURPLUS(+)/DEFICIT(-)	-80	-104
3	**DVC**		
	NET MAXIMUM DEMAND	3100	1970
	NET POWER AVAILABILITY- Own Source	5257	3035
	Central Sector+MPL	260	348
	Bi- lateral export by DVC	2400	1486
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	17	-73
4	**ODISHA**		
	NET MAXIMUM DEMAND (OWN)	4500	2723
	NET MAXIMUM DEMAND (In Case,600 MW CPP Drawal)	5100	2795
	NET POWER AVAILABILITY- Own Source	3857	2232
	Central Sector	1958	985
	SURPLUS(+)/DEFICIT(-) (OWN)	1315	494
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal)	715	422
5	**WEST BENGAL**		
5.1	**WBSEDCL**		
	NET MAXIMUM DEMAND	7250	4470
	NET MAXIMUM DEMAND (Incl. B'Desh+Sikkim)	7260	4561
	NET POWER AVAILABILITY- Own Source (Incl. DPL)	4749	2173
	Central Sector+Bi-lateral+IPP&CPP+TLDP	2660	1705
	EXPORT (TO B'DESH & SIKKIM)	10	7
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	149	-683
5.2	**IPCL**		
	IPCL Demand	130	84
	IPCL Import	130	84
	SURPLUS(+)/DEFICIT(-)	0	0
5.3	**CESC**		
	NET MAXIMUM DEMAND	1950	1020
	NET POWER AVAILABILITY- Own Source	830	500
	FROM OTHER SOURCE (INCL. IPP/CPP-29-30 MU/M)	535	130
	IMPORT FROM HEL	540	390
	TOTAL AVAILABILITY OF CESC	1905	1020
	SURPLUS(+)/DEFICIT(-)	-45	0
5.4	**WEST BENGAL (WBSEDCL+CESC+IPCL)**		
	(excluding DVC's supply to WBSEDCL's command area)		
	NET MAXIMUM DEMAND	9330	5574
	NET POWER AVAILABILITY- Own Source	5579	2673
	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	3735	2225
	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXPORT	-16	-676
	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXPORT	-26	-683
6	**SIKKIM**		
	NET MAXIMUM DEMAND	102	46
	NET POWER AVAILABILITY- Own Source	8	3
	Central Sector	200	123
	SURPLUS(+)/DEFICIT(-)	106	80
7	**EASTERN REGION**		
	NET MAXIMUM DEMAND	24541	15227
	NET MAXIMUM DEMAND (In Case, 600 MW CPP Drawal of Odisha)	25129	15299
	BILATERAL EXPORT BY DVC	1998	1486
	EXPORT BY WBSEDCL TO SIKKIM &B'desh	10	7
	EXPORT TO B'DESH & NEPAL OTHER THAN DVC	642	546
	NET TOTAL POWER AVAILABILITY OF ER	28742	15850
	(INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)		
	SURPLUS(+)/DEFICIT(-)	1551	-1416
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal of Odisha)	963	-1488