AGENDA

FOR

171 ST OCC MEETING

Date: 25.09.2020

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700033

Eastern Regional Power Committee

Agenda for 171st OCC Meeting to be held on 25th September 2020

PART A

Item No. A.1: Confirmation of minutes of 170th OCC meeting of ERPC held on 27.07.2020.

The minutes of 170th OCC meeting were uploaded in ERPC website and circulated vide letter dated 04.09.2020 to all the constituents.

Members may confirm the minutes of 170th OCC meeting.

PART B: ITEMS FOR DISCUSSION

Item No. B.1 Declaration of high demand / low demand season for 2021-22---ERLDC.

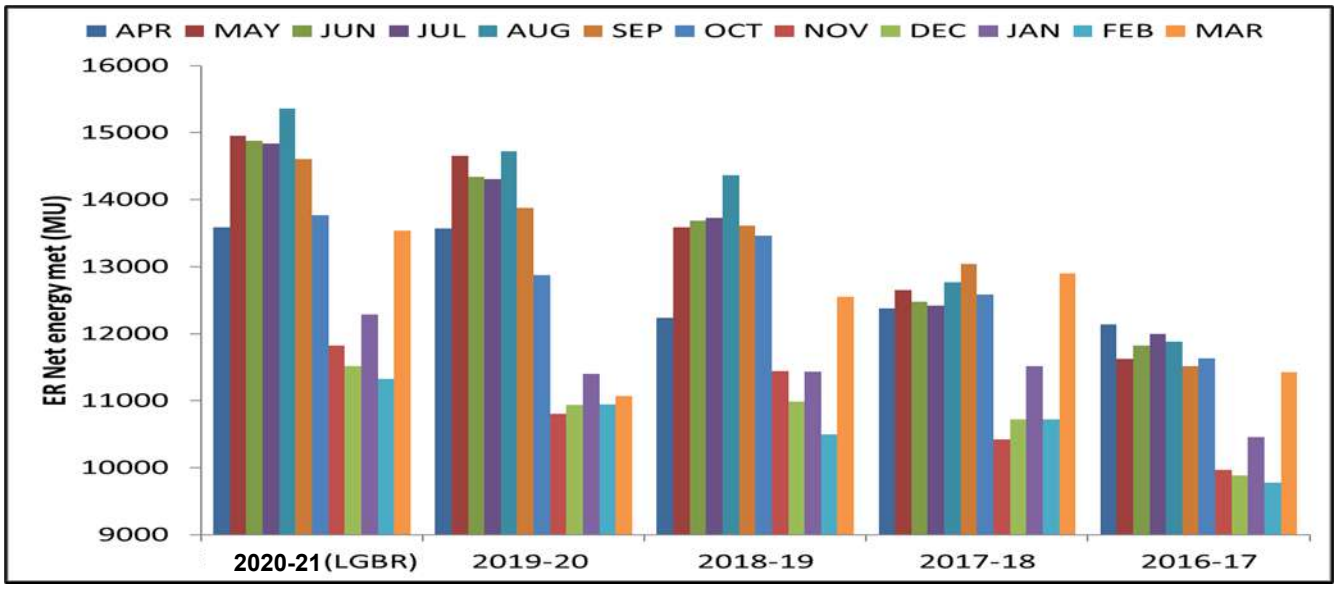
Regulation 42 of CERC (Terms and Conditions of Tariff) Regulations, 2019, pertaining to computation and payment of capacity charge for thermal generating stations, contains the following provisions:

"The capacity charge shall be recovered under two segments of the year, i.e. High Demand Season (period of three months) and Low Demand Season (period of remaining nine months), and within each season in two parts viz., Capacity Charge for Peak Hours of the month and Capacity Charge for Off Peak Hours of the month"
"The number of hours of "Peak" and "Off-Peak" periods during a day shall be four and twenty, respectively. The hours of Peak and Off-Peak periods during a day shall be declared by the concerned RLDC at least a week in advance. The High Demand Season (period of three months, consecutive or otherwise) and Low Demand Season (period of remaining nine months, consecutive or otherwise) in a region shall be declared by the concerned RLDC, at least six months in advance:
Provided that RLDC, after duly considering the comments of the concerned stakeholders, shall declare Peak Hours and High Demand Season in such a way as to coincide with the majority of the Peak Hours and High Demand Season of the region to the maximum extent possible"

An exercise has been done for identification of high demand season for Eastern Region for 2021-22 (as per draft LGBR for 2020-21), 2019-20, 2018-19, 2017-18 and 2016-17. The months with the highest net energy met in Eastern Region are as below:

Year	Highest demand met
2020-21 (LGBR)	AUG, MAY, JUN
2019-20	AUG, MAY, JUN
2018-19	AUG, JUL, JUN
2017-18	SEP, MAR, AUG
2016-17	APR, JUL, AUG

Variation of energy consumption during various months of the year is shown below:



Ranking of the months based on energy consumption is given below:

Month	2020-21	2019-20	2018-19	2017-18	2016-17
APR	7	6	8	8	**1**
MAY	**2**	**2**	5	4	6
JUN	**3**	**3**	**3**	6	4
JUL	4	4	**2**	7	**2**
AUG	**1**	**1**	**1**	**3**	**3**
SEP	5	5	4	**1**	7
OCT	6	7	6	5	5
NOV	10	12	9	12	10
DEC	11	11	11	10	11
JAN	9	8	10	9	9
FEB	12	10	12	11	12
MAR	8	9	7	**2**	8

Based on the detailed analysis, it is observed that net energy met by Eastern Region is high in the months of August, May and June. **Therefore, the month of August, May and June are selected as high demand season for the year of 2021-22 for the Eastern Regional Grid.**

In the 170th OCC Meeting, ERLDC gave a presentation on selection of high demand season for the year 2021-22. The presentation is enclosed as Annexure-B16.1 of 170th OCC Minutes document.

Thereafter OCC advised all the states and generators to go through the details and submit their comments to ERPC and ERLDC within 15 days. OCC decided to discuss the issue in next OCC meeting to finalise the high demand season.

All the states and generators may give their comments.

Item No. B.2 Data for preparation Load Generation Balance Report (LGBR) of ER for the year 2021-22

As per the IEGC, RPC Secretariat is responsible for finalization of the Annual Load Generation Balance Report (LGBR) for Peak as well as Off-peak scenarios and the annual outage plan for the respective region

To facilitate the preparation of LGBR of Eastern Region by ERPC Secretariat within the schedule period, the following data/information for the year **2021-22** in respect of the constituents/utilities of Eastern Region is urgently required:

i) The unit wise and station wise monthly energy generation proposed from existing units during 2021-22 (thermal/hydro/RES).
ii) Annual maintenance program for each of the generating units (thermal and hydro both).
iii) Generating units under R&M / long outage indicating date of outage and reasons of outage and expected date of return (thermal and hydro both).
iv) Partial and forced outage figures (in %) of generating units for the last 3 years.
v) Month wise peak demand (MW) – restricted and unrestricted peak demand.
vi) Month wise off-peak demand (MW).
vii) Month wise energy requirement (in MU).
viii) Month wise & source wise power (both MU & MW) purchase and/or sale plan.
ix) Schedule of commissioning of new generating units during 2021-22 and unit-wise monthly generation program (in MU).
x) Allocation of power from new generating units.
xi) Month wise and annual planned outage of transmission system (Transmission lines 220kV and above / ICTs / Reactors/ other elements.

Information may please also be submitted in the form of soft copy through email (mail ID: mserpc-power@nic.in **/ ereb_cea@yahoo.co.in**).

Members may furnish the above data.

Item No. B.3 Power supply position during Durga Puja, 2020.

The Hon'ble Minister, Department of Power & Non-Conventional Energy Sources, Govt. of West Bengal has convened a meeting on 24.09.2020 regarding Action Plan for meeting the power demand during the Durga Puja festival, 2020 i.e. the period from 21.10.2020 (Maha Sasthi) to 26.10.2020 (Maha Dashami).

ERPC has assessed the expected Availability vis-à-vis projected Demand for West Bengal as well as Eastern Region during the above period. The details are given in the **Annexure-B.3.1 to B.3.3**.

Members may kindly note and comply.

Item No. B.4 Outage of important transmission system.

1. 400/220 KV GIS Darbhanga (DMTCL)--Bihar

BSPTCL vide letter dated 10th August 2020 informed that temporary shutdown of 400/220 KV Darbhanga Substation was availed on 28.07.2020 at 11:29 am owing to rising water level and vulnerable situation of the Substation. This is to inform that because of this outage, all associated transmission lines of BSPTCL were out resulting in loss of approx. 200 MW of load. They are facing hardship and difficulties due to non-adequate availability of power in the adjoining areas. This is causing growing resentment in the public. As such, earliest restoration of the Substation is of utmost importance for BSPTCL.

Therefore, it is requested to take early action towards restoration of the Substation through dewatering of the area, if possible. Also, it is requested to make sound arrangement in the Grid by ensuring all safety and emergency restoration measures to avoid repetition of such type of situation in future.

In 170th OCC Meeting, DMTCL informed that 400/220 KV Darbhanga Substation was restored on 10th Aug 2020.

Thereafter, OCC expressed serious concern over flooding of 400/220 KV Darbhanga substation. OCC then advised DMTCL to take all the precautionary actions to avoid such incidences in future.

DMTCL further informed that they are interacting with Powergrid to initiate mitigation plans to avoid such incidences in future. They are planning to lift the critical panels of their S/s up by 200-300 mm so that water does not come inside the panels. DMTCL is also planning to build a wall surrounding the sub-station to avoid entering of the water into the substation.

Thereafter, OCC advised DMTCL to communicate their mitigation plan to ERPC and ERLDC.

DMTCL in a letter dated 1st Sep 2020 attached as **Annexure B.4.1** informed that they would take up viable and necessary actions within their reasonable capacity to minimize the risk of such incidents in future.

DMTCL may update.

2. 400 kV Barh-Motihari D/C and 400 kV Barh-Gorakhpur D/C lines.

Eastern Region Power Committee (ERPC) letter dated 21.11.2019, a six month restoration time starting from the zero date of 15.12.2019 was granted to DMTCL to restore the 400 kV D/C Barh - Motihari-Gorakhpur Lines by re-erecting 6 towers on pile foundations following the washing away of four towers on account of heavy water discharge and change in course of Gandak river last monsoon season.

DMTCL vide its letter dated 21st May 2020 informed that due to the severe impact of COVID 19 Pandemic as well as other Force Majeure events such as unseasonal heavy rains which ultimately affected the pace of DMTCL transmission line restoration work progress and requested for a suitable extension in terms of timelines for completion of restoration work.

To appraise DMTCL challenges, issues, work progress and current position related to restoration work, a consolidated presentation was submitted.

In 168th OCC meeting, DMTCL informed that due to the severe impact of COVID 19 Pandemic as well as other Force Majeure events such as unseasonal heavy rains, the progress of DMTCL transmission line restoration work got affected. DMTCL shared a detailed presentation on the work progress.

DMTCL further added that if weather conditions would be favorable then the work would have been completed by 15th July 2020.

Thereafter OCC advised DMTCL to complete the restoration work at the earliest and advised DMTCL to share the details of work progress on weekly basis to ERPC.

In 169th OCC Meeting DMTCL informed that because of bad weather conditions and high-water level in Gandak river they are getting less working hours to carry out the tower erection works. Therefore, the restoration works of 400 kV Barh-Motihari D/C and 400 kV Barh-Gorakhpur D/C lines are getting delayed. DMTCL further added that ERS of 400kV Barh-Motihari S/C line which had been used to

restore the line on temporary basis was also washed out because of the heavy water flow. They informed that they are working hard to restore 400kV Barh-Motihari S/C line on permanent towers and the line would be restored within two days provided the water level recedes and they get the opportunity to work.

Thereafter OCC advised DMTCL to complete the restoration work at the earliest.

Thereafter, DMTCL also informed that the 400kV Darbhanga (DMTCL) S/s may get flooded as the water level in river Ganges has reached the highest level of last 30 years.

To this issue ERLDC opined that a bypass arrangement should be planned at 400kV Darbhanga (DMTCL) S/s so that the 400kV Kishanganj-Darbhanga-Muzaffarpur link could be kept in service in case of flooding of the substation.

OCC then advised DMTCL to interact with the respective transmission utilities for possibilities of making bypass arrangement at 400kV Darbhanga (DMTCL) S/s and submit the details to ERPC and ERLDC.

Further, OCC decided that a separate meeting with the concerned utilities may be convened to discuss the issue of bypass arrangement at 400kV Darbhanga (DMTCL) S/s in after receiving the preliminary details from DMTCL.

Thereafter DMTCL in a mail dated 13.08.2020 informed that despite extreme weather conditions, unprecedented discharge from the Valmiki dam, resulting floods, and high-water currents, their team at site has been able to complete the erection of tower location 27/0 mid-stream of Gandak river and has also completed the stringing of Barh-Motihari line (single ckt. single conductor per phase) on 07.08.2020. Post receiving required clearances, the line has been successfully charged on **08.08.2020** and power flow to the northern region of Bihar has been resumed.

Further DMTCL informed that they have submitted the details of restoration work and the issues/ challenges which impacted the restoration work progress which was annexed in 170th OCC Agenda document.

In the 170th OCC Meeting, DMTCL informed that since the water discharge is very high in the area where work is to be carried out, the work has to be stopped temporarily. They would be able to start the work only after receding of the water level in the area. They further informed that they would be able to restore lines by Mar 2021.

Thereafter, OCC expressed serious concern over delay in permanent restoration of 400 kV Barh-Motihari D/C and 400 kV Barh-Gorakhpur D/C lines and advised DMTCL to put all efforts to restore the line on permanent towers at the earliest.

DMTCL in a letter dated 10th Sep 2020 informed about the progress of the restoration process achieved so far. The letter is given in the **Annexure B.4.2**.

DMTCL may update about the progress of restoration work.

Item No. B.5 Ramping issues of MTPS-II KBUNL –KBUNL.

MTPS - II KBUNL informed the issues faced under ramping requirements @ minimum 1% per min effective since 1st Apr-20 and deduction of RoE thereof. Even after checking of ramping Capabilities of MTPS - II & fine tuning the system & auto-loops to maintain the ramping capability as per requirement of regulation & grid security, following are the observations hampering our ramping performance as well as machine health.

1. No. of blocks -Scheduled Ramp (%) > 1% are very high about (18%) that is 1/5th of the total blocks in a day. As per report attached, KBUNL No. of Scheduled Ramp > 1% are 491 & 530 in Apr-20 & May-20 respectively which is even more than twice that of NTPC Talcher Kaniha (180-274 no /month). No. of Scheduled Ramp > 1% reduced in the month of June-20 & July-20, however, remain in the range of 220-237 no. It has been observed that between 01-Sept -20 to 07-sept 2020, No. of Scheduled Ramp > 1% increased drastically & received Ramps >1% are 117 in first week of Sept -20 itself that is around 19%.

2. There are large No. of blocks having ramp rate > 1% with consecutive blocks ramp up/down scheduling (Direction change). No. of such cases in Apr-20 & May-20 are about 28 % of total blocks having Scheduled Ramp > 1%. In Sept-20 first week, No. of such cases are about 32 % that is every third block of scheduled ramping having given with opposite sign ramps & as such no frequency aberration observed during such huge up & down ramp being scheduled. There are few cases in a day where such type of scheduling (consecutive blocks ramp up/ Ramp down) are more that 50% in a day for e.g.11.04.2020 (B17-B32) , 29.05.2020 (B69-B90) , 08.06.2020 (B59-B77) , 22.08.2020 (B77-B92) , 02.09.2020 (B40-B56) , 05.09.2020 (B38-B47) & 06.09.2020 (B4-B15). Detailed data is attached including the screenshots in **Annexure B.5**.

Ramping ≥1% in one direction for a sustainable period to accommodate the renewable's in Grid but often change in ramping direction in consecutive blocks is not desirable to generating machines barring some occasional emergency requirement. Often/block-to-block cyclic ramping is needlessly stressing our generating unit, as it is very difficult for mechanical systems of the unit to manage change in electrical system of the grid, this severely increasing the stress on Boiler and Turbine & shortening the useful life of key components /equipment of generating unit.

3. Block-to-block cyclic ramping is mainly due to Scheduling under SCED, which is given in the preceding block itself to the achieving block that's to in last 2-3 minutes of preceding block remains unit control Engr. clueless till last minute about ramping the load in same direction or opposite direction. In this situation, to achieve the desired scheduled ramp, Important auto loops are being taken in manual mode causing to large deviation in parameters affecting components of generation unit having Mid-term to Long-term effects.

4. In certain blocks, first block ramp was given only (say) +0.2% from ZERO RAMP RATE and then +1.0%, that defeats the sole purpose of 1st ramp block given provision of achieving 0.5% Ramp when SRR = >1%. Clarification required for assessment of blocks as per guidelines issued for assessment of ramping capability of thermal Interstate generating stations (ISGS). "For the blocks where the scheduled ramp in preceding block was zero, or in the opposing direction, if the ramp in actual generation is greater than or equal to 50% of scheduled ramp rate, that block shall be counted in to have achieved scheduled ramp rate in that block"

In View of the above, issues may be taken up with appropriate authorities and apprise the difficulties faced by Generating stations in lieu of achieving Ramping Capabilities vis a vis reduction in RoE.

Members May discuss.

Item No. B.6 Declaration of less DC during peak hours by ISGS generators –ERLDC

As per IEGC clause 6.4.17, ISGS are mandated not to declare less DC (Declared Capacity) during peak hour compare to other hours of the day. IEGC clause 6.4.17 is as follows.

Quote

While making or revising its declaration of capability, except in case of Run off the River (with up to three-hour pondage) hydro stations, the ISGS shall ensure that the declared capability during peak

hours is not less than that during other hours. However, exception to this rule shall be allowed in case of tripping/resynchronization of units because of forced outage of units.

Unquote

However, it has been observed that several ISGS NTPC thermal plants reduce their declared peak hour DC during real time just before approaching peak hour. Number instances NTPC generating station reduced their declared capacity during peak hour which is less compare to plants off-peak hour DC during period of 1st August to 16th September 2020 is mentioned below.

Plant	KHSTPP II	KHSTPP I	TSTPP I	DARLIPALLY	FSTPP I & II	FSTPP III
No of occasions	5	3	11	4	3	2

NTPC may respond.

Item No. B.7 Maintenance of 66KV bay Equipments at Melli S/s End i.r.o 66KV Kalimpong (WBSETCL) – Melli (Sikkim) S/C Ckt. --WBSETCL

SLDC West Bengal vide letter dated 16th Sep 2020 informed that, Kalimpong town is a district Head Qtr. Where power supply is maintained from 66KV WBSETCL Kalimpong S/s. In case of any contingency in respect of 66KV Chalsa – Kalimpong S/C line, power supply of this important district Head Qtr. Gets fully depended on Melli (Sikkim) source. During such contingency, availability of Melli source has been found to be very much unreliable / unstable due to frequent outage of age old CKT breaker at Melli end in most of the recent past occasions resulting interruption of power supply at Kalimpong district Head Qtr. So, to improve power situation at Kalimpong, WBSETCL authority proposes to undertake the responsibility of maintenance / replacement of the associated problematic 66KV Kalimpong Bay equipments at Melli end at own cost.

WBSETCL and Sikkim may discuss.

Item No. B.8 Updating Operating procedure of Eastern Region, 2020–ERLDC.

The Operating Procedure of every region must be updated and revised annually by the concerned RLDC, in compliance to section 5.1(f) of the IEGC. Accordingly, ERLDC vide email dated 14th July 2020 circulated the draft Operating Procedure of Eastern Region to all regional entities of Eastern Region for their valuable suggestions and observations. The procedure is finalized and uploaded at ERLDC website by 20-07-2020, taking into consideration comments received till 18-07-20.

In 169th OCC Meeting, OCC advised all the constituents to go through the operating procedure and submit their comments, if any to ERLDC within a week.

Thereafter, ERLDC informed that they have received some observations/comments regarding Updated Operating Procedure of Eastern Region. The points are given in the tabular format:

Sl. No	Item Sl. No	Description	Brief Remarks (Details data wise details will be shared shortly)
01.	3.2.1 & 3.2.2	Voltage control	Band must be mentioned at which Reactors will be put into service and when it will be withdrawn. Rajarhat B/R switching history will be provided as reference.
02.	5.0	Outage Procedure	Already after several discussion the outage procedure has been finalized in 162nd OCC.

			However, the proposed procedure is not matching with the finalized one. Details will be provided.
03.	6.6	Charging procedure	In point 5, there is a proposal for constitution of committee. As per previous experiences, it is very difficult for synchronization with different members from cross verticals and will delay the activity only.
04.	6.7	FTC procedure/documents	a. RIO certificate is asked from respective licensee. In B5 format every licensee is already certifying the same, then why it is asked again. b. Necessary protection setting confirmation is already provided in B2 formats. Detail protection settings not required. c. Details specification of equipment's is purely, licensee prerogative as all licensee is procuring as per CEA standard clause. Further detailing is not required.
05.	6.7.3.1	Installation of SEM	For other generators/IPP/ISGS, SEM will be handed over by POWERGRID but all necessary installation and further maintenance like time drifting etc to be done by respective generators/licensee only. May be included.
06.	7.4.4.3	Patrolling Report	Details of tripping findings will be shared as it is already in place, if any tripping occurred. However, patrolling report is a licensee specific format and will not be possible to submit in any specific format as mentioned.

Observations/comments in this regard received from Powergrid is enclosed as Annexure-B.9 of 170th OCC Agenda document.

In 170th OCC Meeting, ERLDC informed that they have received comments from Powergrid only.

OCC then advised all the constituents to go through the given procedure and give their comments by 1st week of September 2020. OCC thereafter decided to discuss the procedure in a separate meeting with all the constituents.

Members may confirm.

PART C: ITEMS FOR UPDATE

Item No. C.1: Status of UFRs healthiness installed in Eastern Region.

In the 170th OCC Meeting, CESC informed that they have submitted the UFR healthiness certificate on 07.08.2020.

OCC then advised all the constituents to communicate the status of UFRs healthiness to ERPC on monthly basis.

UFR healthiness certificate for August 2020 was received from WBSETCL in a letter dated 7th Sep 2020.

Members may update.

Item No. C.2: Status of Islanding Schemes healthiness installed in Eastern Region.

At present, the following islanding schemes are in service:

1. CESC as a whole Islanding Scheme, CESC
2. BkTPS Islanding Scheme, WBPDCL
3. Tata Power Islanding Scheme, Haldia
4. Chandrapura TPS Islanding Scheme, DVC
5. Farakka Islanding Scheme, NTPC
6. Bandel Islanding Scheme, WBPDCL

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

In 168th OCC meeting DVC informed that during the preliminary study they identified that the implementation of islanding scheme with Mejia units 7 and 8 was not possible therefore now they had considered Chandrapura unit 7 & 8 for the implementation of islanding scheme.

ERLDC advised DVC to submit at least a preliminary draft plan to ERPC and ERLDC.

In the 170th OCC Meeting, ERLDC informed that they will study the proposal of Islanding scheme given by DVC and thereafter they will give their comments.

Healthiness certificate for August 2020 has been received from NTPC, BkTPS, BTPS and Tata Power Islanding scheme.

Members may discuss.

Item No. C.3: Primary Frequency Response Testing of Generating Units—POSOCO.

NLDC vide letter dated 10th August 2020, communicated a procedure to be considered for Commercial Settlement during onsite testing of generators for Primary Response of regional generating units.

In the 170th OCC Meeting, ERLDC informed that as per IEGC regulations, Primary Frequency Response Testing of generators is a mandatory activity. It was informed that for compliance of the above regulations, selection of the vendor has already been completed and all the generators including IPP's and ISGS's have been informed accordingly. ERLDC further informed that all the power stations of ER except TSTPS-Kaniha, Adhunik, BRBCL, NPGC, Teesta-V & Dikchu have placed their LOA with M/S Solvina.

ERLDC mentioned that generally the testing would be carried out in three steps of generation level for each of the generating unit. The subjected generating unit must maintain the schedule to the desired level of generation during the period of testing in all the 3 steps. For this the Generating Stations which are having multiple units while testing at a particular level of a unit, the total schedule of that station can be maintained by adjusting generation in the remaining units. For Generating Stations which are having only one functional unit, during testing can maintain their schedule by purchase or sale of power from Real Time Marketing. For hydro-generators the testing may preferably be done during the period of receding monsoon. Therefore, it was clarified that normal DSM charges would be applied during the period of testing.

After detailed deliberation, OCC felt that it is desirable to know the duration of the test and its

possible impact on the scheduling to decide the commercial mechanism proposed in Annexure-B1.

ERLDC further informed that they are planning to hold a meeting with the testing agency, all regional generating stations and SLDC's wherein the testing procedure of all three steps viz. Full Load, 80% of Full Load and Technical Minimum would be discussed.

Thereafter OCC advised all the constituents to go through Annexure-B1 and submit their comments to ERPC within a week for finalization of commercial mechanism.

OCC also advised all the remaining ISGS and IPP generators to place the LOA and give a schedule of the test beforehand so that beneficiaries are informed in advance and the same can be discussed in the upcoming OCC Meetings.

On 10th Sep 2020, a meeting was held between ERPC, ERLDC, SLDC's and all regional generating stations wherein M/S Solvina gave a presentation on the details of Primary frequency response testing and the steps to be followed in the procedure.

Further all the members clarified their doubts and it was decided that the remaining generators who have not placed their LOA with M/S Solvina should place it at the earliest.

Members may discuss.

Item No. C.4: Testing of primary frequency response of state generating units by third party agency--ERLDC

The Hon'ble Central Electricity Regulatory Commission (CERC), vide notification dated 12th April 2017, had notified Indian Electricity Grid Code (Fifth Amendment) Regulations, 2017. As per this notification, following provision has been added at the end of Regulation 5.2 (g) of Part 5 of the Principal Indian Electricity Grid Code (IEGC) Regulations: "Provided that periodic checkups by third party should be conducted at regular interval once in two years through independent agencies selected by RLDCs or SLDCs as the case may be. The cost of such tests shall be recovered by the RLDCs or SLDCs from the Generators. If deemed necessary by RLDCs/SLDCs, the test may be conducted more than once in two years."

In compliance of IEGC, process of testing of primary frequency response of regional generating units (eligible for RGMO as per IEGC section 5.2 (f)) has been started by POSOCO.

In the 170th OCC Meeting, ERLDC informed that as per the regulation, testing of primary frequency response of state generators by a third party is required to be undertaken by the respective SLDC's.

Thereafter, SLDC Odisha informed that they have not finalized a plan yet, but they will communicate the detailed plan to ERPC by 15th Sep 2020.

OCC then advised all the SLDC's to prepare an action plan for their state generators having capacity of 200 MW or more and submit the details to ERLDC and ERPC within a week.

All the concerned SLDC's may update the action plan for their state generators.

Item No. C.5: Issues related to charging 400KV Meramundali – Bolangir (PG) line after availing the shutdown --- SLDC Odisha.

400KV Meramundali – Bolangir (PG) line availed shutdown on 12.08.2020 for replacement of 'Y' phase CVT at Meramundali end as per ERLDC approval No. ER-RQ 3597 Dt. 10.08.2020. On completion of shutdown work at the time of charging, ERLDC insisted for RIO inspection report. Further, ERLDC issued switch on code only after submission of an undertaking as follows:

"Y- Phase CVT inspection report from RIO will be submitted as early as possible and also any further equipment that will be replaced in future will be supported by proper inspection report from RIO prior to applying for switch on code".

Replacement of CT, PT, CVT, CB, LA isolator etc. is quite common in day to day maintenance. The prevailing COVID-19 pandemic situation synchronizing the visit of Electrical Inspectors with maintenance work is quite difficult. So, obtaining inspection report of Electrical Inspector for maintenance of each of these elements is not practically feasible.

Therefore, it is requested to review the procedure of these elements to smoothly carry out maintenance work in the prevailing situation.

In the 170th OCC Meeting, SLDC Odisha explained that replacement of CT, PT, CVT, CB, LA isolator etc. is a day to day maintenance work and obtaining approval of Electrical Inspector would delay the charging of the line. SLDC, Odisha therefore requested to review the procedure.

Thereafter in the meeting, ERLDC informed that as per the Chief Electrical Inspectorate, CEA letter dated 26thDecember 2019 (copy enclosed as Annexure-B.10 of 170th OCC Minutes document), the replacement and upgradation work of substation equipment needs to be approved by Electrical Inspector. Therefore, ERLDC is insisting for Electrical Inspector clearance for any replacement work before charging the element.

Thereafter, SLDCs and Transmission utilities in the meeting opined that replacement of CT, PT, CVT, CB, LA isolator etc. is a regular maintenance work and such replacement works need to be completed within short time span to bring the transmission line into service. They explained that availing Electrical Inspector clearance would take time in this COVID-19 pandemic situation and it may create operational constraint for the transmission system. Constituents in the OCC Meeting requested ERPC Secretariat to take up the issue with Chief Electrical Inspectorate, CEA for seeking necessary clarifications and reviewal of procedure, if required to ensure removal of these operational bottlenecks. Further, Constituents also requested to follow the existing procedure till the clarification in this regard is received from Chief Electrical Inspectorate, CEA.

ERPC Secretariat agreed to take up the issue with Chief Electrical Inspectorate, CEA for seeking necessary clarifications.

Then OCC recommended ERLDC to follow the existing procedure till the clarification received from Chief Electrical Inspectorate, CEA.

ERPC in a letter dated 1st Sep 2020, written to the Chief Electrical Inspectorate (CEA), requested to issue necessary clarifications and guidelines to ERPC Secretariat in this regard for smooth operation of Eastern Regional Grid.

The Chief Electrical Inspectorate (CEA) in a letter dated 7th Sep 2020 informed that in time of Covid pandemic, CEI division/RIOs have been giving provisional approval to cases requiring urgent charging wherever physical inspection is not possible. The letter from CEA is given in **Annexure C.5**.

Members may note.

Item No. C.6: Transfer capability determination by the states.

Latest status of State ATC/TTC declared by states for the month of October-2020

Sl No	State/Utility	TTC (MW)		RM(MW)		ATC Import (MW)		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	6450	--	129	--	6321	--	Sep-20
2	JUSNL	1259	--	35	--	1224	--	Oct-20
3	DVC	1464	2870	63	50	1410	2820	Dec-20
4	OPTCL	2133	1051	83	61	2050	990	Sep-20
5	WBSETCL	4512	--	400	--	4112	--	Oct-20
6	Sikkim	295	--	2.5	--	292.5	--	Dec-19

Sikkim has stopped sending the TTC values as well as PSSE files.

Members may update.

Item No. C.7: Mock Black start exercises in Eastern Region – ERLDC.

Mock black start date for financial year 2019-20 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 May, 2019	Done on 19th July 2019	Last Week of January 2020	28 March 2020
2	Maithon	1st week of June 2019	Taken up only after replacing the governing systems of the units	1st Week of February 2020	After June 2020
3	Rengali	2nd week of June 2019	Done on 27th June 2019	Last week of November 2020	Done on 17th January 2020
4	U. Indarvati	3rd week of June 2019	Done on 7th November 2019	2nd week of February 2020	March 2020
5	Subarnarekha	1st week of October 2019	Done 20th August 2019	1st week of January 2020	After Aug 2020
6	Balimela	3rd week of October 2019	Done on 17th July 2019	1st week of March 2020	*Done on 12th Feb 2020*
7	Teesta-V	2nd week of May 2019	Done on 28th Nov 2019	Last week of February 2020	
8	Chuzachen	Last Week of Dec 2019	Done on 5th December 2019	Last week of March 2020	
9	Burla	Last Week of June 2019	Done on 20th July 2019	Last week of February 2020	Done on 11th Feb 2020
10	TLDP-III	1st Week of June 2019	November-19	2nd Week of January 2020	
11	TLDP-IV	Last Week of June 2019	December-19	1st Week of February 2020	
12	Teesta-III	Last Week of Oct 2019		First Week of March 2020	
13	Jorthang	First Week of May 2019		First Week of Feb 2020	
14	Tasheding	2nd Week of May 2019		2nd Week of Feb 2020	

15	Dikchu	Sep 2019		3rd Week of Feb 2020	Attempted on 19th Feb 2020 but not Successful

In the 169th OCC Meeting, Odisha informed that they are planning to conduct the mock black start exercise for Burla and Rengali in Sept 2020. They further informed that because of COVID-19situations they were unable to carry out the black start exercise for Balimela HEP as per schedule in July 20 and they will conduct the same by Sep 2020.

In the 170th OCC Meeting, Odisha informed that they would carry out the mock black start exercise in the month of September 2020.

Members may update.

Item No. C.8: Multiple outages of Isolators & Circuit Breakers at Ramchanderpur S/S (JUSNL)—ERLDC.

In the 169th OCC Meeting, Jharkhand informed that replacement of isolator and circuit breakers is in progress under PSDF project. They have applied for shutdown from 1st Aug for normalizing all the Breakers and Isolators.

Thereafter, ERLDC informed that they are not getting any information on healthiness of the elements as a result they are facing problem in real time operation.

OCC then advised SLDC, Jharkhand and other utilities to ensure availability of all elements in ISTS connected stations for secure and reliable system operation and inform about any outage of the elements in their substation to ERLDC at the earliest.

In the 170th OCC Meeting, JUSNL informed that the work would be completed by 30th Aug 2020.

JUSNL may update.

Item No. C.9: Prolonged outage of bays in Koderma (DVC) substation: ERLDC.

The main CB of 400 KV Koderma-Bokaro-2 at Koderma was out since 25.12.2019 due to damage in the double interrupter chamber and the line is charged through the tie CB with B/R-2. On 15.07.2020, due to leakage of oil pressure of the main CB of B/R-2, DVC requested emergency S/D of the line due to the unavailability of main CB. Tie CB of B/R-1 and Gaya-1 was also out since 22.10.2019 due to oil leakage from B-ph CT and problem in CB hydraulic mechanism. Such prolonged outages of breakers at such an important substation which has connectivity to ISTS system as well as generating station hamper the reliability and security of the system operation.

In 169th OCC Meeting, DVC mentioned that bays of the Gaya line are made available. Work has already been started for restoring the Koderma line bays and the same would be available by 2nd Aug 20.

In the 170th OCC Meeting, DVC informed that the main CB of 400kV Koderma-Bokaro line at Koderma has been charged since 2nd Aug 2020. Further DVC mentioned that tie CB of Gaya-1 will be made available by 31st Aug 2020.

DVC may update the status of restoration of Gaya bay.

Item No. C.10: Agenda of NTPC Talcher, Kaniha.

The Calibration of the energy meters (SEMs) at TSTPS premises is overdue (last calibration carried

out between 19.09.2013 to 04.10.2013). This was pointed by various audit teams including Govt. auditors and was raised in OCC meetings. The annual audit report of Talcher-Solar CDM project for 2019-20 is kept abeyance only because of the above issue. Calibration of these meters (Solar meters in priority) to be carried out at the earliest.

In the 170th OCC Meeting, Powergrid ER-1 informed that currently they have a stock of 150 meters.

Thereafter, OCC advised NTPC Talcher to collect 8 nos. of SEM's from Powergrid Patna Office to replace the old SEMs.

NTPC may update.

Item No. C.11: Finalization of procedure for PSS tuning of power plants -- ERLDC

Power System Stabilizer (PSS) tuning is an ongoing exercise in Eastern regional grid after observation of various low frequency oscillation from time to time in the grid. In line with this, OCC has decided that all generating plants in eastern region will submit their PSS tuning plan to ERLDC/ERPC and the test reports for validation.

Considering above and other technical and regulatory requirement of CEA and CERC PSS tuning is being done at different generating station, however at present no formal guideline is available for carrying out the same. Due to which it was observed that result shared by the generating units are not standardized and sometimes some tests are missed out.

To take care of the same a draft procedure for PSS tuning is prepared to be shared in the upcoming OCC Meeting. All are requested to go through it and give comments so that it can be finalized.

In 169th OCC Meeting, OCC advised all the generators to go through the draft procedure enclosed in Annexure-B9 of 169th OCC Minutes document and submit their comments to ERLDC within 15 days.

OCC then advised ERLDC to place this procedure in the separate meeting on RGMO wherein most of the generators are present in the meeting.

In the 170th OCC Meeting, ERLDC informed that as of now they have not received any comments.

OCC then advised all the generators to go through the procedure and submit their comments to ERLDC at the earliest.

ERLDC may update.

Item No. C.12: Operationalizing Bus splitting at Biharshariff--ERLDC

Bus split arrangement at Biharshariff was already commissioned, however it was not put in service as split bus arrangement was causing uneven loading in 400/220 kV ICTs at Biharsariff. Thus, earlier it was decided that the same will be put in service after commissioning of 4th ICT at Biharsariff. After commissioning of 4th ICT simulation studies are carried out at ERLDC and same is also shared with Bihar SLDC. From the study it is observed that Bus-split at Biharshariff has no significant effect on loading of 400 KV lines but 400/220 KV ICT flows is getting significantly skewed.

- N-1 contingency of 500 MVA ICT-IV leads to 265 MW loading on ICT –II (315 MVA rating) where in base case without bus-split, total ICT loading at Biharshariff was 560 MW and Bihar demand 4650MW.
- If we consider summer peak case having 6000 MW Bihar demand with 660 MW Biharshariff ICTs loading, N-1 contingency of 500 MVA ICT-IV leads to 301 MW loading on ICT –II (315 MVA rating).

In 169th OCC Meeting, ERLDC informed that Bihar had submitted a report wherein Bihar agreed for the implementation of bus-split arrangement.

Further, ERLDC added that Bihar has to make load shedding scheme to avoid the tripping of 315 MVA ICT on overload during tripping of 500 MVA ICT.

Thereafter, OCC opined that depending on the power flows after putting the bus splitting scheme in service, the SPS scheme should be decided.

OCC then advised Powergrid to make necessary changes in protection settings for implementation of the bus-split arrangement and to coordinate with remote end sub-stations. OCC further, advised Powergrid to intimate a suitable date to ERLDC for putting the bus splitting scheme in service at Biharshariff.

In the 170th OCC Meeting, Powergrid informed that they have computed the protection settings for split mode operation and forwarded to their corporate office for review and comments. Powergrid added that they will update status as soon as they receive the information from their corporate office.

Members may update.

Item No. C.13: Constitution of a committee for independent verification of self-declarations and auditor's / accountant's certificates on random basis and in the case of complaints.

CEA vide letter dated 17th August 2020 informed that In pursuance of DPIIT order No. P-45021/2/2017-PP(BE-II) dated 04.06.2020 regarding Public Procurement (Preference to Make in India), order 2017 (PPP-MII)-'clause 9(d)' and MoP Order No. 11/05/2018/Coord dated 28.07.2020-'clause 6', a Committee has been constituted for independent verification of self-declarations and auditor's/ accountant's certificates on random basis and in case of complaints. The composition of the Committee is given below:

Chairperson	Member (Planning), CEA
Member	Chief Engineer (PSETD), CEA
Member	Chief Engineer (HETD), CEA
Member	Chief Engineer (TETD), CEA
Member	Chief Engineer (DP&R), CEA
External Expert	As may be co-opted by CEA
Convener	Chief Engineer (R&D), CEA

In this regard, it is required to submit to this office the procurement wise details and self-declaration certificates submitted by the suppliers regarding local contents of the purchases.

Before furnishing the details to Verification Committee, the self-declarations certificate about local contents etc. may also be verified at your end and an analysis report of the same may be furnished.

Compliance report regarding cyber security/safety of the equipment/process to be rendered as safe to connect, regular safety audit certificates (as mentioned in the Annexure-III of the aforesaid MoP Order) based on the requirement of the tender issued by the procuring entity may also be furnished in respect of each purchases.

Also, procuring entities are requested to add a clause in their tender documents mentioning that the "*Self-declarations/ auditor's/ accountant's certificates submitted by the manufacturer/ supplier may be verified randomly by the committee constituted as per MoP Order 28-07-2020. In case of false*

documents/misrepresentation of the facts requisite action against such manufacturer/ supplier will be taken based on the recommendation of the Committee."

The communication in this regard may be made with Ms. Sheetal Jain, Deputy Director, CEA, R K Puram, New Delhi 110066. Phone No. 011-26732286 Email **cerndcea@gmail.com**

In the 170th OCC Meeting, OCC advised all the constituents to submit the certificates provided by the suppliers and manufacturers to CEA through the given email.

All the constituents may update about the submission of certificates to the given Email.

Item No. C.14: Request for data of the equipment/components to be included in Approved List of Model and Manufacturers (ALMM) Development of a Web Portal and creation of required fields in the Portal.

CEA vide mail communicated that MOP has brought out the Order No. 11/05/2018-Coord dated 23-07-2020 (Link for Order No. 11/05/2018-Coord dated 23-07-2020) mentioning creation of ALMM. As you are aware that a dynamic Web Portal is to be developed for ALMM. In this regard it is requested that equipment wise rating of all the equipments used in your Organization and their parameters that are considered mandatory (to be filled in the "respective fields" of the Portal) and are usually considered during the procurements/ tendering may be provided to this office in a tabulated form. These data will facilitate the creation of required 'data fields' in the Portal for easy accessibility and navigation.

Product wise Vendor details may also be given.

Kindly provide information on email: **cerndcea@gmail.com.**

In the 170th OCC Meeting, OCC advised all the constituents to communicate the list of equipments to CEA through the given email.

All the constituents may update about the submission of equipments list to the given Email.

Item No. C.15: Monthly Data on Category-wise consumption of electricity in States/UTs---CEA

1. CEA vide mail informed that Hon'ble MoSP(IC) has desired the month-wise category-wise consumption data in the various States/UTs from April,2019 to July, 2020. CEA requested all the concerned utilities of States to furnish the data at the earliest.

In 170th OCC Meeting, SLDC DVC informed that they had already provided the data vide mail on 11.08.2020 & 21.08.2020.

Thereafter SLDC Odisha, Bihar and Jharkhand agreed to submit the relevant details within three days.

SLDC West Bengal informed that currently they were not having the category wise data. They further informed that they would contact their distribution system and forward it to ERPC.

OCC then advised Sikkim to submit the relevant information to ERPC.

Members may update.

2. CEA also informed that Hon'ble MoSP(IC) has also desired to know the reasons for the use of captive power plants by Industrial Consumers despite availability of adequate power in the country.

In the 170th OCC Meeting, OCC advised all the states to communicate the reasons regarding use of captive power plants by industrial consumers despite availability of power in the country to ERPC at the earliest.

Members may update.

Item No. C.16: Integration of Power from Renewable Energy Zones (REZs)—POSOCO.

With regard to integration of REZs expected up to 2021-22 time-frame, the All India PSSE file with different scenarios is being prepared for assessing Inter-Regional adequacy of the grid and based on which system strengthening, if any, would be carried out.

In view of the above, 9 nos. of scenarios have been prepared. Load generation scenarios, results of the system studies for Scenario-4 (High RE), June 2021-22 Afternoon Peak, study assumptions & inputs considered have already been uploaded on CTU website. The said system studies are preliminary analysis of the system conditions based on the discussions held with CEA and POSOCO.

Further system studies for balance 8 nos. of scenarios is under-preparation and shall be finalized after receipt of comments/observations from the stakeholders. It is requested to forward comments/observations on the referred scenario, if any, latest by 26-06-2020.

Comments were received from POSOCO vide letter dated 25.06.2020. No comments were received from any other constituents of ER. Accordingly, the updated system studies incorporating observations received from POSOCO were carried out for all the 9 nos. of scenarios. The system studies along with observations received from POSOCO/constituents were also discussed with CEA and POSOCO in meeting held on 23.07.2020.

In view of above, Load generation scenarios, study assumptions & inputs considered, system studies and study analysis are attached as Annexure B.8 in 170th OCC Agenda document for comments/observations. It is requested to forward comments/observations on the above, if any, at the earliest.

In the 170th OCC Meeting, OCC advised all the utilities to go through the Annexure B.8 of 170th OCC Agenda document and communicate the comments regarding the findings of the study to ERPC and ERLDC so that the same can be forwarded to CTU.

Utilities may update their findings regarding the study.

Members may discuss.

Item No. C.17: ER Grid performance during August 2020.

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month August – 2020 were as follows:

Average Consumption (Mu)	Maximum Consumption(mu)/ Date	Maximum Demand (MW)	Minimum Demand (MW)	Schedule Export	Actual Export
		Date/Time	Date/Time	(Mu)	(Mu)
466	502 MU 31-08-2020	23645 MW 18-07-2020 22:41	13806 MW 20-08-2020 15:54	3045	2860

ERLDC may present Performance of Eastern Regional Grid.

Item No. C.18: Performance primary frequency response of generating stations in Eastern Region for the event in the month of August 2020.

Frequency response characteristics (FRC) has been analyzed pan India for two events of sudden frequency change that occurred during the month of August 2020. The details of those events and the overall response of Eastern region have been summarized and given in **Annexure-C.18**.

Members may note and comply.

PART D: OPERATIONAL PLANNING

Item No. D.1: Anticipated power supply position during October 2020.

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of October 2020 were prepared by ERPC Secretariat on the basis of LGBR for 2019-20 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 confirm.

Item No. D.2: Shutdown proposal of transmission lines and generating units for the month of October 2020.

Generator shutdown for October 2020 is shown below.

Proposed Maintenance Schedule of Thermal Generating Units of ER during 2020-21 in the month of Oct 20
(as finalised in draft LGBR meeting held on 06.12.2019)

System	Station	Unit	Capacity (MW)	Period		No. of Days	Reason
				From	To		
DVC	Mejia TPS	5	250	26.10.20	20.11.20	26	BOH & Gen. (As agreed)

ERLDC may place the list of transmission lines shutdown discussed on 22nd September 2020.

Members may note.

Item No. D3: Major Generating Units/Transmission Element outages/shutdown in ER Grid (as on 10.06.2020).

SL. No	Station	Agency	Unit No	Capacity	Reason(s)	Outage	
				MW		Date	Time
1	BARAUNI TPS	BSPHCL	7	110	RSD/LOW SYSTEM DEMAND	28-May-20	07:00
2	BOKARO'B'	DVC	3	210	DESYN ON LOW SYSTEM DEMAND	19-Jun-20	08:20
3	CHANDRAPURA TPS	DVC	3	130	TURBINE BLADE DAMAGE	30-Jul-17	00:00
4	KOLAGHAT	WBPDCL	1	210	POLLUTION PROBLEM	10-May-18	23:05
5	KOLAGHAT	WBPDCL	2	210	ESP FIELD MAINTENANCE	26-Dec-19	22:48
6	KOLAGHAT	WBPDCL	3	210	RSD/LOW SYSTEM DEMAND	13-Jun-20	15:15
7	KOLAGHAT	WBPDCL	4	210	RSD/ LOW SYSTEM DEMAND	15-Jul-20	17:17
8	KOLAGHAT	WBPDCL	6	210	RSD/LOW SYSTEM DEMAND	16-Jan-20	23:37
9	MEJIA TPS	DVC	3	210	RSD/LOW SYSTEM DEMAND	01-Aug-20	10:22
10	SANTALDIH TPS	WBPDCL	6	250	ANNUAL OVERHAULING	10-Sep-20	00:31
11	TTPS	NTPC	1	62.5	ANNUAL OVERHAULING	29-Aug-20	23:47
12	JITPL	JITPL	1	600	DUE TO BOTTOM ASH SCRAPPER PROBLEM	09-Sep-20	18:42
13	KBUNL	NTPC, BSPHCL	2	195	SHAFT VIBRATION HIGH	24-Jul-20	02:41
14	KHSTPP	NTPC	5	500	TURBINE VIBRATION	05-Aug-20	20:51
15	NABINAGAR(BRBCL)	NTPC	2	250	GENERATOR BEARING HIGH VIBRATION	12-Aug-20	02:20
16	BARAUNI TPS	BSPHCL	6	110	ELECTRICAL PROTECTION TRIP; PROBLEM IN BEARING GEAR MOTOR	25-Feb-20	06:56
17	IB.TPS	OPGC	2	210	ANNUAL OVERHAULING	01-Sep-20	23:58
18	OPGC3	OPGC	3	660	ASH EVACUATION PROBLEM	05-Sep-20	20:50
19	RTPS	DVC	2	600	LEAKAGE IN SUPERHEATER DRAIN VALVE	06-Sep-20	00:02
20	SAGARDIGHI	WBPDCL	2	300	AUXILLARY SUPPLY FAILED	18-Mar-20	12:20
21	U. KOLAB	OHPC	3	80	GUIDE BEARING TEMPERATURE HIGH	07-Jan-20	07:55
22	WARIA TPS	DVC	4	210	BOILER TUBE LEAKAGE	02-Mar-20	17:54

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

Hydro Unit Outage report:

SL. No	Station	Agency	Unit No	Capacity	Reason(s)	Outage	
				MW		Date	Time
1	TEESTA STG III Hep	TUL	3	200	B-phase interrupter of 400kV side of Unit#3 GT got damaged	13-Sep-2020	18:06

2	BALIMELA HPS	OHPC	4	60	SPARKING IN PMG	02-Mar-2020	17:40
3	BALIMELA HPS	OHPC	6	60	HEAVY LEAKAGE IN ID VALVE	06-Sep-2020	09:53
4	U. KOLAB	OHPC	3	80	GUIDE BEARING TEMPERATURE HIGH	07-Jan-2020	07:55

It is seen that about 400 MW hydro capacities in Odisha is under forced outage / planned outage in the period of peak monsoon and therefore not available for providing the much-needed peaking support during evening peak. SLDC / OHPC may please indicate restoration plan of the units.

Line Long Outage Report:

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.
4	400 KV MOTIHARI(DMTCL)-GORAKHPUR-I	POWERGRID/DMTCL	13-08-2019	LINE SWITCHED OFF DUE TO ANTICIPATED TOWER COLLAPSE AT LOC 27/0(132) DUE TO CHANGE OF COURSE OF GANDAK RIVER.TOWER COLLAPSED REPORTED AT LOC 27/0(132) ON 15/08/19 AT 07:00 HRS. 400KV BARH -GORAKHPUR 1 CHARGED AT 18:57 HRS ON 05.02.20 AS INTERIM ARRANGEMENT BYPASSING LILO PORTION OF MOTIHARI.
5	400 KV MOTIHARI(DMTCL)-GORAKHPUR-II	POWERGRID/DMTCL	13-08-2019	Earlier reconfigured Barh - Gorakhpur # II again LILOED back at Motihari and the portion beyond Motihari shall be termed as 400 KV MOTIHARI(DMTCL)-GORAKHPUR-II

6	400 KV BARH-MOTIHARI(DMTCL) - I	POWERGRID/DMTCL	04-09-2019	TOWER COLLAPSE AT LOCATION 26/0 AND 25/5. 400KV BARH -GORAKHPUR 2 CHARGED AT 10:06 HRS ON 31.01.20 AS INTERIM ARRANGEMENT BYPASSING LILO PORTION OF MOTIHARI. 400KV BARH -GORAKHPUR 1 CHARGED AT 18:57 HRS ON 05.02.20 AS INTERIM ARRANGEMENT BYPASSING LILO PORTION OF MOTIHARI.
7	400 KV KOLAGHAT-NEW CHANDITALA	WBSETCL	25-04-2020	For connectivity in between 220KV KTPP-Howrah Ckt and 400KV KTPP-New Chanditala ckt. Part of line to be used at 220 KV to supply power to Howrah from Kolaghat
8	220/132 KV 100 MVA ICT 3 at Chandil	JUSNL	30-04-2020	ICT BURST AND DAMAGED AFTER FIRE REPORTED
9	132 KV NEW KISHANGANJ - BARSOI S/C	BSPTCL	02-07-2020	Out due to heavy soil erosion at loc no 140 and 141 by river Kankai. line charged as 132 KV Purnea (PG) - Barsoi w.e.f 21.07.20 at 19:05 Hrs temporarily by suitable jumper arrangement at the crossing point of 132 kV Kisanganj(New) - barsoi and 132 kV Purnea(PG) - Kisanganj (old).
10	132KV-PURNEA (PG)-KISHANGANJ(OLD) S/C	BSPTCL	02-07-2020	
11	400KV-KOLAGHAT-NEW CHANDITALA	WBSETCL	25-04-2020	S/D TAKEN FOR CONNECTIVITY BETWEEN 220KV KTPP-HOWRAH CKT AND 400KV KTPP-NEW CHANDITALA CKT
12	400KV/220KV 315 MVA ICT 4 AT RANGPO	PGCIL	20-08-2020	Hydrogen level increased to Alarming Value. Abnormal sound coming from ICT.
13	765KV-JHARSUGUDA-RAIPUR PS (DURG)-1	PGCIL	02-09-2020	Voltage Regulation
14	765KV-JHARSUGUDA-ANGUL-4	PGCIL	03-09-2020	Voltage Regulation
15	400KV-NEW PURNEA-GOKARNA	PGCIL	04-09-2020	To attend and avoid tower collapse situation due to continuous erosion due to flood in the river Ganga at tower loc no 1103
16	400KV-NEW PURNEA-FSTPP	PGCIL	04-09-2020	To attend and avoid tower collapse situation due to continuous erosion due to flood in

				the river Ganga at tower loc no 1103
17	220KV-DALTONGUNJ-GARWAH (NEW)-2	JUSNL	05-09-2020	DALTONGANJ: Y_N, 1.99 KA, 65.88 KM, LINE UNDER BREAKDOWN
18	220KV-PUSAULI-SAHUPURI-1	PGCIL	13-09-2020	Y-phase conductor found snapped around 9.6 km. Line under s/d.
19	220KV-NEW PURNEA-MADHEPURA-1	BSPTCL	15-09-2020	B_ph current missing at Madhepura. Line hand tripped

As per long outage list, most of the important grid elements, inter-state as well as intra-state, are under outage for long time due to tower collapse and other issues.

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)

Members may update.

Item No. D.4 Commissioning of new units and transmission elements in Eastern Grid in the month of August 2020.

The details of new units/transmission elements commissioned in the month of August -2020 based on the inputs received from beneficiaries:

SL NO	Element Name	Owner	Charging Date	Charging Time
1	220 kV Daltonganj-Garhwa New I	JVUNL	16-08-2020	17:03:00
2	220 kV Daltonganj-Garhwa New II	JVUNL	16-08-2020	17:31:00

Members may update.

Item No. D.5 UFR operation during the month of August 2020.

Frequency profile for the month is as follows:

Month	Max (Date/Time)	Min (Date/Time)	% Less IEGC Band	% Within IEGC Band	% More IEGC Band
August, 2020	50.23, 30-08-2020 14:44	49.6 31-08-2020 19:11	6.1	80.9	13

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

Members may note.

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EASTERN REGIONAL POWER COMMITTEE

EXECUTIVE SUMMARY

LOAD MANAGEMENT OF WEST BENGAL DURING ALL THE PUJA DAYS
21.10.2020 TO 26.10.2020 (PANCHAMI TO DASHMI)

(All figures in net MW)

SYSTEM	21.10.2020 (PANCHAMI) WEDNESDAY	22.10.2020 (SASTHI) THURSDAY	23.10.2020 (SAPTAMI) FRIDAY	24.10.2020 (ASTAMI) SATURDAY	25.10.2020 (NAVMI) SUNDAY	26.10.2020 (DASMI) MONDAY
	PEAK	PEAK	PEAK	PEAK	PEAK	PEAK
WBSEDCL GEN.	1250	1250	1250	1250	1250	1250
WBPDCL+DPL GEN.	3435	3435	3435	3435	3435	3435
CESC GEN.	1330	1330	1330	1330	1330	1330
(Inc. HEL)						
Total	***6015***	***6015***	***6015***	***6015***	***6015***	***6015***
C. SECTOR +IPP	2055	2055	2055	2055	2055	2055
Import from CPP	105	105	105	105	105	105
TOTAL AVAILABILITY	**8175**	**8175**	**8175**	**8175**	**8175**	**8175**
DEMAND OF WEST BENGAL (Inc. export)	**8000**	**8125**	**7028**	**6104**	**5928**	**6105**
Sur.(+)/Def.(-)	**175**	**50**	**1147**	**2071**	**2247**	**2070**
E.REGIONAL AVAILABILITY	**29029**	**29029**	**29029**	**29029**	**29029**	**29029**
E.REGIONAL DEMAND	**21890**	**21835**	**19954**	**18080**	**17809**	**18572**
Probable forced & partial outages @4%	**1161**	**1161**	**1161**	**1161**	**1161**	**1161**
E.REGIONAL Sur.(+)/Def.(-)	5978	6033	7914	9788	10059	9296

ANNEXURE-B.3.2

EASTERN REGIONAL POWER COMMITTEE
PUJA LOAD FORECAST '2020
DEMAND IN NET MW AND AT 50.0 HZ

		WEST BENGAL							
PUJA		WBSEDCL	CESC	TOTAL WEST	BSPHCL	JUVNL	DVC	ODISHA	15036
DAYS				BENGAL					
	MAX	6200	1800	8000	5315	1351	2853	4375	21890
PANCHMI									
21-Oct-20	MIN	4572	1059	5680	2945	892	2421	3381	16402
WEDNESDAY	AVG	5267	1457	6724	3916	1049	2588	3723	18064
	MAX	6365	1770	8125	5164	1415	2838	4330	21835
SASTHI									
22-Oct-20	MIN	4373	1079	5521	2847	918	2390	3374	16350
THURSDAY	AVG	5282	1462	6744	3839	1121	2613	3732	18119
	MAX	5730	1550	7028	4873	1294	2767	4050	19954
SAPTAMI									
23-Oct-20	MIN	4284	1089	5405	2520	913	2346	2991	14898
FRIDAY	AVG	4952	1329	6281	3673	1096	2545	3501	17167
	MAX	4765	1380	6104	4612	1141	2618	3500	18080
ASTAMI									
24-Oct-20	MIN	3422	1030	4481	2426	767	2287	2463	12916
SATURDAY	AVG	4087	1210	5298	3453	933	2428	2851	15036
	MAX	4628	1300	5928	4402	1244	2615	3537	17809
NAVAMI									
25-Oct-20	MIN	2850	938	4039	2284	631	2192	2382	12729
SUNDAY	AVG	3595	1114	4709	3231	906	2376	2872	14165
	MAX	4825	1280	6105	4757	1375	2727	3595	18572
DASHMI									
26-Oct-20	MIN	3324	876	4329	2471	899	2332	2576	13054
MONDAY	AVG	3864	1081	4946	3326	1053	2478	2974	14837

If there would be rain, System demand may drop around 700/800 MW in WEST Bengal and Region as a whole around 2000 MW

ANNEXURE-B.3.3

EASTERN REGIONAL POWER COMMITTEE

Generation Availability During Puja-2020

Expected Peak Hours Generation										
			Gross MW				Net MW			
System	Plants	Unit Considered	Therm.	Hydro+RES	Import Captive	Total	Therm.	Hydro	Captive	Total
BSPHCL	BTPS	1X110+1X250	250							
	MTPS	2X110	100							
TOTAL			350	80	0	430	308	80	0	388
JUVNL	TTPS	2x210	380	100	60	540	323	100	60	483
DVC	BTPS-A	1X500	470							
	CTPS	2x250	475							
	DTPS	1X210	160							
	MTPS	4x210+2X250+2X500	2200							
	Durgapur STPS	2X500	950							
	Kodarma TPS	2X500	950							
	RTPS	2X600	855							
	TOTAL		6060	100	0	6160	5515	100	0	5615
ODISHA	IB TPS	2x210+2x660	1650							
	TTPS	4x60+2x110	410							
	TOTAL		2060	1450	900	4410	1875	1443	900	4217
WBPDCL	BTPS	2x60+1X215	200							
	STPS	2X250	500							
	KTPP	2x210	350							
	BkTPP	5x210	1050							
	Sag TPS	2X300+2X500	1320							
	DPL	1*300+1X250	400							
	TOTAL		3820		105	3925	3435	0	105	3540
WBSEDCL	(JAL.+RAMAM+TISTA)HPS+PPSP+TLDP		0	1250	0	1250	0	1250		1250
CESC	TTPS	4x60	0							
	STPS	2x67.5	100							
	B.BUDGE TPS	3x250	750							
	HEL	2X300	600							
	TOTAL		1450			1450	1330			1330
NTPC	FSTPP	3x200+3x500	1900							
	KhSTPP	4x210+3X500	2100							
	TSTPP	2x500	1000							
	TSTPS Stg-II		*150*							
	Barh STPS	2X660	*1260*							
	MTPS Stg-II	2X195	*350*							
	BRBCL	3X250	*700*							
	NSTPS	1X660	*600*							
	Daripali STPS	1X800	*800*							
	TOTAL		8860			8860	5988	*		5988
NHPC	RHPS	3x20		60		60		60		60
	Teesta HEP	3x170		510		510		510		510
IPP	MPL (U#1&2)	2X525	1000							
	APNRL (U#1,2)	2X270	480							
	GMR (2x350)	2X350	650							
	JITPL (2X600)	1X600	580							
	Total IPP TH		2710			2710	2480	0		2480
	CHUZACHEN (2x55)			100		100		100		100
	JORETHANG (2x48)			90		90		90		90
	TEESTA URJA St III (6x200)			1000		1000		1000		1000
	Tashinding (2x48.5)			90		90		90		90
	DICKCHU (2X48)			90		90		90		90
	Total IPP HY			1370		1370	0	1370		1370
Import from BHUTAN	Chu. HPS,BIR. Receipt	4X90		250		250		250		250
	KHPS	4X15		60		60		60		60
	Tala HEP	6X170		950		950		808		808
	Dagachu HPS	2X63		126		126		120		120
	Mangdechhu HEP	4X180		700		700		560		
TOTAL				2086		1386		1798		1238
GRAND TOTAL			25690	6306	1065	33061	21253	6710	1065	29029

* for Eastern Region only .

29029

West Bengal SHARE FROM ISGS

NTPC	PEAK	% SHARE
FSTPS	597	34.21%
KhSTPP	57	3.10%
TSTPP	96	10.13%
BarhTPS	0	0.00%
MTPS-Stg-II	26	9.64%
BRBCL	0	0.00%
NSTPS	0	0.00%
Darlipali STPS	120	15.59%
NHPC		
RHPS	17	28.34%
Teest HPS	122	23.98%
Bhutan		
CHPC	80	31.85%
KHEP	30	50.00%
THEP	309	38%
MHEP	180	32.14%
IPP		
MPL+Adh.+Mejia	422	
Gr.Total	2055	

Darbhanga-Motihari Transmission Company Limited

September 01, 2020

Ref. No.: DMTCL.REG.EXM.025.00.01092020

The Member Secretary (Act)
Eastern Region Power Committee
14, Golf Club Road, Tollygunge,
Kolkata-700033

Kind Attention: Shri Shyam Kejriwal

Subject : Grant of relief under the Force Majeure provisions of the TSA with reference to 1) completion of strengthening / restoration of Motihari LILO; 2) outage on account of floods at Darbhanga substation

Ref.:

1. DMTCL presentation in 168th OCC meeting held on June 17, 2020 seeking extension for the restoration work
2. DMTCL weekly update to ERPC on the restoration work progress and challenges faced at site in restoration work
3. DMTCL regular updates to ERPC and LTTC regarding progress of LILO section restoration work and challenges faced because of unseasonal rains pre-lockdown
4. DMTCL FM notice intimation no. DMTCL.REG.EXM.050.00.25.03.2020, dated March 25, 2020 – Country wide lockdown due to Covid-19 pandemic as well as unseasonal rains in region and subsequent updates
5. DMTCL request for seeking extension of restoration timeline under the lockdown restrictions of COVID-19 pandemic and other Force Majeure events through letter no. DMTCL.REG.EXM. 006.00.21052020, dated 21.05.2020;
6. DMTCL post lockdown intimations of restoration works at LILO section updating about pandemic as well as floods/ unprecedented discharge and progress achieved
7. DMTCL intimation no. DMTCL.REG.EXM.018.00.09082020 dated August 09, 2020 communication regarding charging of Barh-Motihari Line on Temporary basis
8. DMTCL FM notice – Darbhanga sub-station flooding, intimation no. DMTCL.REG.EXM.016.00. 03082020 dated August 03, 2020
9. DMTCL update on charging of Darbhanga sub-station intimation no. DMTCL.REG.EXM.023. 00.16082020 dated August 16, 2020
10. DMTCL FM presentation- Darbhanga flooding and subsequent restoration of sub-station in 170th OCC meeting held on August 27, 2020

Dear Sir,

With reference to our submission referred above and our presentations to the OCC of the ERPC on the subject over the last few months, we would like to draw your kind attention to the following summary on the Force Majeure events that impacted operations at DMTCL, and that of our requests above for relief under the Force Majeure provisions of the TSA:

1. **Impact of Force Majeure (pandemic and floods) on works related to strengthening / restoration of the Barh – Motihari – Gorakhpur LILO section**

- In the monsoon of 2019, the Motihari LILO section located on the banks of River Gandaki was impacted on account of river changing course and washing away **"four"** 400kV towers *(our presentations dated September 20, 2019 and October 24, 2019 to the ERPC*
- The Committee formed by the ERPC granted relief under the FM provisions of the TSA and required DMTCL to complete the strengthening / restoration works 6 towers *by June 14th, 2020 starting from December 15th, 2019 as zero date (site access to river locations is generally possible only after end November)*
- In the long term interest of asset integrity, DMTCL decided to strengthen **"twelve" towers" instead of the six proposed above** *(ten new taller towers on pile foundations plus two taller towers thereby strengthening the foundations with 160 piles; increasing the span and moving open cast foundations 2 Kms away from the river on the Gopalganj bank and 1 Km away from the Areraj bank)*
- In addition, as a prudent operator, just prior to Holi in March 2020, DMTCL voluntarily completed installation of a temporary evacuation arrangement using an ERS system *(single conductor, single circuit),* which enabled power flow, meeting the requirements of the region *(capacity to evacuate ~350MW)*
- By the time Lockdown was announced by the Government on account of the Covid-19 Pandemic, notwithstanding unseasonal rains since February 2020 in the region (as regularly intimated to ERPC through our notices), **DMTCL had managed to complete >65% of the work** *(copy of status update presented in 168th OCC of ERPC dated June 17, 2020 is attached – Annexure 1)*

  Sir, you will kindly note from all our updates that had it not been for the Pandemic and resulting Lockdown, we were on target to complete our Strengthening works ahead of schedule and before monsoon *(while ensuring temporary flow of power in the interim through ERS)*
- All works related to strengthening / restoration had to come to a standstill due to Pandemic related orders / guidelines received by the government
- A very detailed submission on the impact of the stoppage of work and subsequent Lockdown was submitted to the 168th OCC of ERPC on June 17, 2020 seeking relief under the FM provisions of the TSA and seeking grant of extension for completion of strengthening / restoration works *(copy attached as Annexure 1)*
- Apart from stoppage of work on the river banks and norms stipulated with respect to assembly and social distancing, labour could not be deployed to protect temporary islands associated with two towers (26/0 and 26/3) which were created mid-stream of the river to carry out pile works, which as a result got washed away by the river *(pictures attached as Annexure 2, submitted in the past to ERPC as part of regular updates)*
- In the first available opportunity after receiving permission from the government to restart work, notwithstanding innumerable challenges as detailed in our presentation to the ERPC dated June 17, 2020 and our regular updates, DMTCL recommenced construction activities in full compliance to MHA and other local government guidelines

- Notwithstanding significant additional costs associated with the Pandemic and lockdown (*apart from our decision to voluntarily implement ERS and strengthen six additional towers and incur material capex),* in order to make-up for lost time, DMTCL decided to move two towers, 26/0 and 26/3 *(whose islands were washed away during lockdown period)* to the river bank by replacing the towers procured with taller and special towers

- We managed to progress work during the Pandemic *(with full compliance to guidelines)* and by early June 2020 completed a major part of the civil works *(status submitted as of June 2020 is attached as Annexure 3)*

- From June 2020, the catchment areas of Gandaki river in Nepal and areas around our site have been lashed by unprecedented rains as well as unforeseen extent of water discharge from the Valmiki Barrage *(Discharge Data from mid-June to August 2020 is attached as Annexure 4)*

- As seen in the discharge data above, the amount of water that was discharged starting mid- June 2020 is unprecedented *(~150,000 cusecs in June to near to record highest of ~436,500 cusecs in July)* flooding the site completely and cutting off access from both the banks to the restoration site location which is continue till date

- This resulted in serious disruption and losses to DMTCL's construction activities and resulted in washing away six poles of the ERS system (stopping power flow), three Truck Mounted rigs, several tower material, conductor and other construction material and access roads

- The impact of severity and intensity of floods in the region and its impact on the grid was also recognized by our LTTC, BSPTCL, vide its notice to the general public in local newspapers (Annexure 5)

  Sir, you will kindly note that had it not been for the lockdown / Pandemic, strengthening / restoration works would not have got pushed to the monsoon during which it is extremely dangerous to work on the river under normal monsoon conditions, leave alone this year whereby the risk was further aggravated on account of Pandemic as well as unprecedented floods and resulting water currents

- We have issued suitable FM notices on the subject in line with the terms contained in the TSA and kept the LTTCs and ERPC's updated regularly

- Notwithstanding the pandemic, heavy rains, thunderstorms, severe floods, lack of roads access, high water currents, etc., DMTCL team worked tirelessly in close coordination with our LTTC, BSPTCL, to meet our fundamental obligation of restarting power supply with stringent safety protocols and compliance to government's covid norms / restrictions

- Within a month after the ERS got washed away **on August 8, 2020, DMTCL completed all works related to piles, tower erection (27/0) and stringing of a single conductor arrangement (~350MW capacity) mid-stream and re-established flow of power to the North Bihar region**

- As soon as water currents reduce and site becomes accessible, in consultation with BSPTCL and ERLDC, we propose to string one more 400kV single conductor circuit either on Barh or Gorakhpur lines to ensure that the system has enough redundancy, while we complete other works associated with the strengthening activity

- We would like to draw your attention to the fact that locations 26/0 and 26/3 which we had moved to the river bank are currently under water (see pictures attached as Annexure 6) and has around 6-8 m of water depth along with high water current making it impossible to commence civil works on pending pile foundations

- The current status of work completed, and balance works are attached as Annexure 7. We expect site access to be re-established fully by end November based on past experience of Gandaki Stretch wherein we have to work. The impact on our site locations because of floods, river course, etc., will be known after water levels reduce by November. Road access to the locations including to the river locations will have to be re-established. Our teams are on stand-by at site and we will be able to finalize the construction methodology and commence work as soon as site access is established, with due safety assessment, and water currents / water depth reduce

- We expect to start at the first available opportunity in early December and will target to finish all remaining works including the river locations *(plus re-stringing and restoring the temporary lines and shut-downs required thereof)* by April 15th (Annexure 9) as an outer deadline (*pending which power flow will be maintained through the arrangement we have put in place)*

  Sir, you will kindly note that this work was pushed to monsoon only because of the pandemic during which it is dangerous to pursue work. We will start work in the first available opportunity and complete work at the earliest irrespective of the deadline above

- Based on the summary above (as detailed in our regular notices, intimations, presentations and updates referred above), we request you to kindly grant us relief under the Force Majeure provisions of the TSA, grant us extension till April 15th, 2021 (Annexure 9) to complete strengthening / restorations works and issue Availability Certificates for the extended period

  - We are given to understand from media reports that the Ministry of Power has recognized the disruption on account of Covid-19 Pandemic and issued suitable orders granting extension of time for completion of inter-state transmission projects by five months (refer Annexure 8)

  - Other ministries of the union government have also granted relief to projects under construction across sectors including Renewable Energy

  - We were constrained from progressing work starting June 2020 given the risks / challenges to human life and equipment associated with working in the river and by the additional Force Majeure event involving unprecedented water discharge and floods in the region *(as recognized by our LTTC, BSPTCL as well in their notice to the general public (Annexure 5)*

  - Moreover, currently Bihar is experiencing huge increase in Covid cases and lot of restrictions w.r.t guidelines of MHA & State of Bihar as well as the resistance from locals on deployments of skilled task force to be bought from outside will be a continuous challenge in completing work.

- As highlighted by us through our regular submissions, you will kindly note that any delay in receiving Availability certificates with consideration to Force Majeure will have serious impact on the viability of the project and its economics, which is already reeling under severe pressure on account of the additional capex associated with strengthening 12 towers, losses incurred during flooding, cost overruns on account of the pandemic, etc. Given the absence of full Availability certificate from June

14th, 2020 one of the ratings agencies has already put the debt instruments of DMTCL under "**Credit Watch with Negative Implications**", which can have serious implications on lender covenants for the project. Shortfall in cash flows will also impact our O&M activities and constrain our ability to seamlessly fund all the activities

In keeping with the foregoing, we request you to kindly grant us extension for completion of strengthening works till April 15th with December 1st as zero date, with consideration to the Pandemic *(5 months from June 14th)* as well as the time during which is not possible to work in the region / river areas owing to very heavy monsoon, river currents and floods (standstill period as kindly recognized by the ERPC in the past), and issue the Availability Certificate for the interim extension period

2. Impact of Force Majeure (floods) on Darbhanga Substation

A copy of the presentation made to the ERPC in the recent OCC dated August 27th, 2020 on the impact of floods in Darbhanga Substation is also attached for your ready reference. Notwithstanding the severity (the attached advertisement from BSPTCL in slide 12 acknowledges this impact as well), our team managed to bring the substation back on-line in the shortest possible time. **We request you to kindly review the same, grant us relief and issue the Availability Certificate recognising the impact of the Force majeure event. As apprised by us during OCC meeting dated 24th Aug 2020, we will take up necessary and viable actions within our reasonable capacity to minimize the risk of such incidents in future jointly with support solicited from other stakeholders in the substation such as Alipurdwar Transmission Ltd. and PGCIL.**

We would request kind consideration to our request for FM relief at the earliest. Receipt of relief urgently will be a great source of encouragement to DMTCL as we go about building a stable, strong and world class asset, while helping us meet our financial obligations and limited impact to project economics.

Thanking you,

Sincerely,
For Darbhanga Motihari Transmission Company Ltd.

Authorized Signatory

Enclosures:

1. Annexure I – Enclosure 1_Page 1 to 49
2. Annexure 2 – Enclosure 1_Page 50 to 56
3. Annexure 3 – Enclosure 1_Page 57
4. Annexure 4 – Enclosure 1_Page 58
5. Annexure 5 - Enclosure 1_Page 59
6. Annexure 6 – Enclosure 1_Page 60
7. Annexure 7 – Enclosure 1_Page 61
8. Annexure 8 – Enclosure 1_Page 62
9. Annexure 9- Enclosure 2_Separate Attachment

Annexure B.4.2

Weekly Update - DMTCL LILO restoration status

by Darbhanga-Motihari Transmission Company Limited

10th September 2020

Weekly update (04th to 10th-September 2020)

- **Current status of Temporary arrangement** – Power flow upto ~360 MW to North Bihar region through temporary restored Barh-Motihari line

- **Status of Permanent restoration** – Owing to discharge of water from Valmiki barrage in Gandak river the restoration site is still inundated with water and inaccessible, therefore work cannot be resumed at restoration site. Further, due to uneven discharge *(Valmiki barrage discharge graph in slide 4 for reference)*, the Gopalganj banks are cutting further owing to which the tower loc 26/3 and 26/0 is now completely in water. (Piling work is balance on these two locations which were shifted to land during pre-monsoon) *(Site pics of loc 26/0 and 26/3 in slide 8 for reference).* The access roads to site are still submerged in water *(Access road pic in slide 9 for reference)*

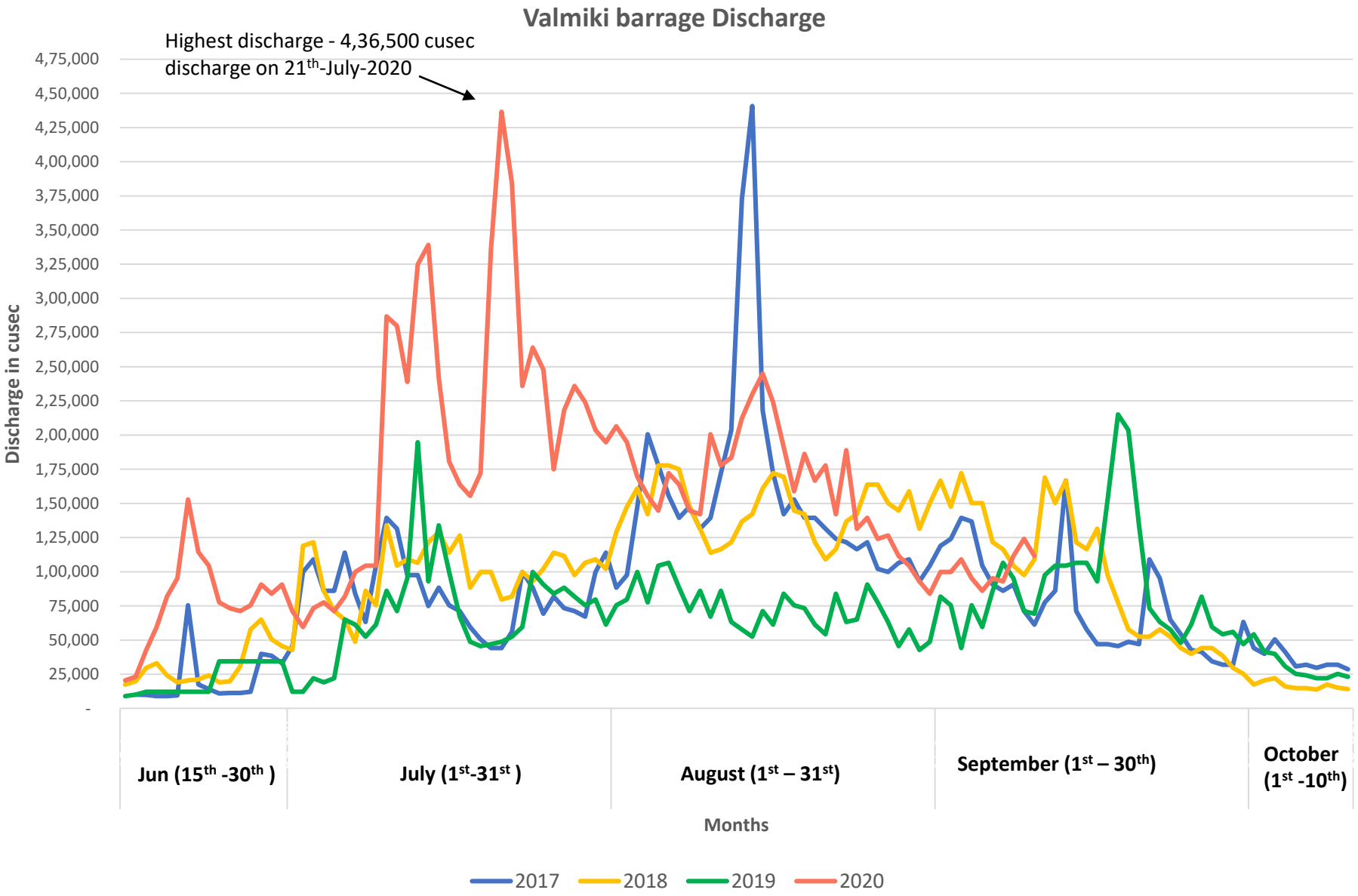
- In addition to above, lockdown in the containment zones in Bihar has been extended till 30th-September-2020 and all the guidelines issued by Ministry of Home Affairs (MHA) for 'unlock 4' will be applicable *(order copy in slide 5 for reference)*

- Site teams are keeping an eye on the situation at site and work for permanent restoration of the transmission lines will be taken up under suitable condition after monsoon period with revised execution strategy based on the new geography of river

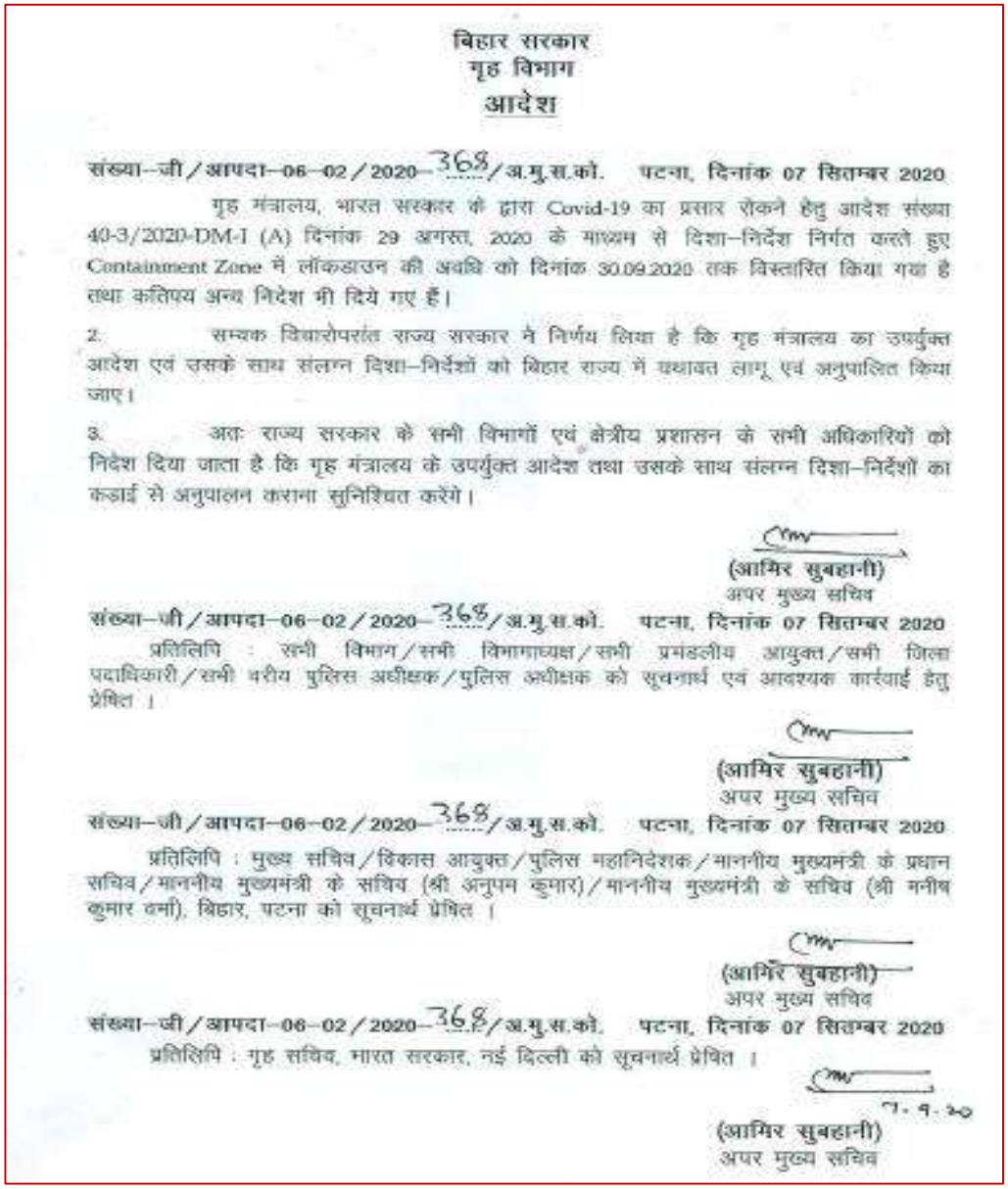
Current status of restoration work

Tower No.	Current Status	Remarks
Barh-Motihari Line		
25/1 (G)	Completed	…..
25/2 (G)	Completed	…..
25/3 (G)	Completed	…..
26/0 (G)	Moved from river to land; 16/20 piles completed	No work progress due to increased water level of Gandak river resulting in complete flooding of site area
26/3 (A)	All 16 piles and 4 pile cap completed	Tower erection and Stringing after charging of Motihari Gorakhpur Circuit
26/4 (A)	All 4 legs completed	Same as above
Motihari-Gorakhpur Line		
26/1 (G)	All 16 piles, 4 Pile cap and chimney completed	No work progress due to increased water level of Gandak river resulting in complete flooding of site area
26/2 (G)	Completed	…..
26/3 (G)	Moved from river to land; 11 piles completed	No work progress due to increased water level of Gandak river resulting in complete flooding of site area
27/0 (R)	Completed	----
27/3 (A)	All 16 piles completed; 4 Pile cap completed	No work progress due to increased water level of Gandak river resulting in complete flooding of site area
27/4 (A)	Foundation completed	No work progress due to increased water level of Gandak river resulting in complete flooding of site area

Valmiki barrage discharge – Yearly comparison



Government of Bihar order dated 07.09.2020 for lockdown in containment zones



बिहार सरकार
गृह विभाग
आदेश

संख्या–जी/आपदा–06–02/2020–368/अ.मु.स.को. पटना, दिनांक 07 सितम्बर 2020

गृह मंत्रालय, भारत सरकार के द्वारा Covid-19 का प्रसार रोकने हेतु आदेश संख्या 40-3/2020-DM-I (A) दिनांक 29 अगस्त, 2020 के माध्यम से दिशा–निर्देश निर्गत करते हुए Containment Zone में लॉकडाउन की अवधि को दिनांक 30.09.2020 तक विस्तारित किया गया है तथा कतिपय अन्य निदेश भी दिये गए हैं।

2. सम्यक विचारोपरांत राज्य सरकार ने निर्णय लिया है कि गृह मंत्रालय का उपर्युक्त आदेश एवं उसके साथ संलग्न दिशा–निर्देशों को बिहार राज्य में यथावत लागू एवं अनुपालित किया जाए।

3. अतः राज्य सरकार के सभी विभागों एवं क्षेत्रीय प्रशासन के सभी अधिकारियों को निदेश दिया जाता है कि गृह मंत्रालय के उपर्युक्त आदेश तथा उसके साथ संलग्न दिशा–निर्देशों का कड़ाई से अनुपालन कराना सुनिश्चित करेंगे।

(आमिर सुबहानी)
अपर मुख्य सचिव

संख्या–जी/आपदा–06–02/2020–368/अ.मु.स.को. पटना, दिनांक 07 सितम्बर 2020

प्रतिलिपि : सभी विभाग/सभी विभागाध्यक्ष/सभी प्रमंडलीय आयुक्त/सभी जिला पदाधिकारी/सभी वरीय पुलिस अधीक्षक/पुलिस अधीक्षक को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

(आमिर सुबहानी)
अपर मुख्य सचिव

संख्या–जी/आपदा–06–02/2020–368/अ.मु.स.को. पटना, दिनांक 07 सितम्बर 2020

प्रतिलिपि : मुख्य सचिव/विकास आयुक्त/पुलिस महानिदेशक/माननीय मुख्यमंत्री के प्रधान सचिव/माननीय मुख्यमंत्री के सचिव (श्री अनुपम कुमार)/माननीय मुख्यमंत्री के सचिव (श्री मनीष कुमार वर्मा), बिहार, पटना को सूचनार्थ प्रेषित।

(आमिर सुबहानी)
अपर मुख्य सचिव

संख्या–जी/आपदा–06–02/2020–368/अ.मु.स.को. पटना, दिनांक 07 सितम्बर 2020

प्रतिलिपि : गृह सचिव, भारत सरकार, नई दिल्ली को सूचनार्थ प्रेषित।

7.9.20

(आमिर सुबहानी)
अपर मुख्य सचिव

Newspaper coverage of washing away of riverbanks due to Gandak flow

गोपालगंज प्रभात

5.09.

चिंता. विश्वंभरपुर में रुक नहीं रहा गंडक का कटाव, खर्च हो चुके हैं डेढ़ करोड़ रुपये

पानी में समा सकता है आंगनबाड़ी का शेष भाग

अफरा-तफरी

संवाददाता ▷ सासामुसा

विश्वंभरपुर में गंडक का कटाव रूकने का नाम नहीं ले रही है. गंडक आंगनबाड़ी केंद्र को अपने आगोश में लेने पर तुली हुई है. आंगनबाड़ी केंद्र कभी भी जमींदोज हो सकता है. इधर बाढ़ नियंत्रण विभाग के अभियंताओं की टीम नदी के कटाव धारा पर अंकुश लगाने के लिए दिन-रात फाइटिंग कार्य कराने में जुटी है. अब तक कराये गये फाइटिंग कार्य नदी के कटाव धारा के सामने बिलकुल साबित हो रहा है. यदि आंगनबाड़ी केंद्र जमींदोज हो गया तो सारण तटबंध पर खतरा मंडराने लगेगा और तब आधा दर्जन से अधिक गांव बाढ़ की तबाही से जूझेगा. गौरतलब है कि कुचायकोट प्रखंड के विशम्भरपुर में विगत 12 दिनों से गंडक नदी कटाव कर रही है. जल स्तर कम होने के साथ ही कटाव का तांडव दिनोंदिन बढ़ते जा रहा है. इधर नदी आंगनबाड़ी केंद्र के कुछ हिस्से को अपने आगोश में ले चुका है. शेष भाग पर नदी की धारा लगातार

कटाव को रोकने में कार्यरत मजदूर.

टकरा रही है. अब तक कटाव को रोकने के लिए बाढ़ नियंत्रण विभाग की ओर से डेढ़ करोड़ रुपये खर्च किए जा चुके हैं. इसके बावजूद भी अब तक कटाव पर नियंत्रण नहीं हो सका है. कटाव यूं ही जारी रहा तो आने वाली धारा से 24 घंटे में आंगनबाड़ी जमींदोज हो सकता है. उसके बाद नदी का निशाना सारण तटबंध होगा. फिलहाल बाढ़ नियंत्रण विभाग कटाव को रोकने में जुटा हुआ है.गंडक के तट कटाव पर लगाम लगाने के लिए बाढ़ नियंत्रण विभाग के वरीय अधिकारी से लेकर अभियंताओं की टीम कटाव स्थल पर कैंप किए हुए है. कटाव रोकने के लिए शुक्रवार को पत्थरगढ़ान और लाभोपोय डालकर नियंत्रण का प्रयास किया गया. वहीं आदमन कैरेट और नाइलन कैरेट मे सैंड बैग डाल कर कटाव स्थल पर डाला जा रहा है. कटाव स्थल पर बाढ़ नियंत्रण विभाग के अध्यक्ष हामिद अंसारी, मुख्य अभियंता ओमप्रकाश अग्रहकार, अधीक्षण अभियंता विनय कुमार सिंह व अधीक्षण अभियंता रविशंकर ठाकुर, कार्यपालक अभियंता महेश्वर शर्मा, सहायक अभियंता अजय किशोर शर्मा, कनीय अभियंता विभाष कुमार गुप्ता, मो. मजीद, सुनील सिंह, अरविंद सिंह सहित टेक्निशियन कटाव निरोधी कार्य कराने मे लगे हैं. इधर ग्रामीणों का आरोप है कि युद्ध स्तर पर कार्य बचाव कार्य नहीं हो रहा है. ग्रामीणों का कहना है कि पर्याप्त साधन और सामग्री नहीं होने से कार्य चंद के कगार पर है. एजेंसियां सुचारू रूप से कार्य नहीं कर रही है. ग्रामीणों ने कहा कि सुचारू रूप से कार्य नहीं हुआ तो उग्र आंदोलन किया जायेगा. फिलहाल

युद्धस्तर पर हो रहा काम खतरे की बात नहीं

आंगनबाड़ी पर नदी का कटाव तेज है, उसे रिकवर किया जा रहा है, जो भी एजेंसियां कार्य में लापरवाही बरत रही है, उसे हटा दिया गया है. बांध पूरी तरह सुरक्षित है, युद्ध स्तर पर कार्य हो रहा है. बांध को किसी भी हाल में टूटने नहीं दिया जायेगा. नदी दक्षिण दिशा की ओर शिफ्ट कर रही है. नदी की दिशा बदलने से हालत बेकाबू हो गया है, जिसे सामान्य किया जा रहा है.

महेश्वर शर्मा, कार्यपालक अभियंता, बाढ़ नियंत्रण विभाग

आंगनबाड़ी को बचाने और कटाव रोकने का प्रयास जारी है.

नदी की कटावी धारा यदि सारण तटबंध को निगलती है तो आधा दर्जन गांव बाढ़ के जद में होंगे. विशम्भरपुर, कालू मंटिहनीया पुलबरिया, कान्पुर, गुमनिया, मधनिया, सलेहपुर, रमजीता, सिवाया, अमोद बिजयपुर, बिजयपुर, बरईपट्टी सहित एक दर्जन गांवों में तबाही मच सकती है.

Prabhat Khabar, Patna - 05.09.2020

Newspaper coverage of washing away of riverbanks due to Gandak flow

पटना, गुरुवार
10.09.2020 | प्रभात खबर | 04

चिंता. उग्र कटावी धारा पर अंकुश लगाने के लिए विभाग झोक रहा ताकत

विशंभरपुर में बेकाबू हुआ गंडक का कटाव, तटबंध पर मंडराया खतरा

संवाददाता , रसासमुसा (गोपालगंज)

विशंभरपुर में गंडक नदी का कटाव बेकाबू होते जा रहा. नदी का कटाव तटबंध को निगलने को बेताब है. गंडक की उग्र धारा लगातार कटाव करते आगे बढ़ रही है. जल संसाधन विभाग विशंभरपुर में पिछले 17 दिनों से गंडक की कटावी धारा से जंग लड़ रहा है. अब तक विभाग ने कटाव रोकने के लिये लगभग दो करोड़ रुपये खर्च कर दिया है, फिर भी कटाव रुकने का नाम नहीं ले रहा है. फाइटिंग वर्क की बढ़ती रफ्तार के साथ दिनोंदिन नदी की धारा उग्र होती जा रही है, और कटाव करते तटबंध की ओर बढ़ रही है. अन्य दिनों की अपेक्षा बुधवार को नदी का रुख कुल ज्यादा ही उग्र रहा. नदी की धारा आंगनबाड़ी केंद्र को निगलने के बाद लगातार तटबंध की ओर बढ़ रही है. नदी की धारा तटबंध से महज 20 मीटर तो कहीं 50 मीटर की दूरी पर रह गयी है. ऐसे में हो रहे कटाव से तटबंध के कटने का खतरा मंडराने लगा है, जिससे आसपास के ग्रामीणों की चिंता बढ़ गयी है. इधर बाढ़ नियंत्रण विभाग के अभियंताओं की टीम नदी के कटावी धारा पर अंकुश लगाने के लिए दिन-रात युद्धस्तर पर फाइटिंग कार्य कराने में जुटी है. अब तक कराये गये फाइटिंग कार्य नदी के कटावी धारा के सामने विफल साबित हो रहे हैं. इधर विभाग लगातार कटाव निरोधक कार्य कराने का दावा कर रहा है, उधर कटाव को देख ग्रामीण विभाग की कार्यशैली पर सवाल खड़ा कर रहे हैं. कटाव पर अंकुश लगाने और तटबंध को बचाने के लिये बाढ़ नियंत्रण विभाग के वरीय अधिकारी से लेकर अभियंताओं की टीम कटाव स्थल पर कैंप किये हुए है. नदी की कटावी धारा आगे न बढ़े, इसके लिये धारा पर लगाम लगाने के लिये एंटी इरोजन का काम जारी है. हालांकि पानी खतरे के निशान से काफी नीचे है. कटाव रोकने के लिए सैंड बैग से भरा नायलन कैनेट जहां डाला जा रहा है, वहीं पाकड़ोपाइन और साकोपोय डालकर नियंत्रण का प्रयास जारी है. कटाव स्थल पर बाढ़ नियंत्रण विभाग के मुख्य अभियंता ओमप्रकाश अग्रहकार, अधीक्षण अभियंता विनय कुमार सिंह व एक्सक्यूटिव अधिशासन अभियंता राजेश्वर ठाकुर, कार्यपालक अभियंता महेश्वर शर्मा, सहायक अभियंता अजय किशोर शर्मा, कनीय अभियंता विभाष कुमार गुप्ता, मो. मजीद, सुशील सिंह, अरविंद सिंह सहित टेक्निशियन कटाव निरोधी कार्य करने में लगे हैं, लेकिन नदी की कटावी धारा लगातार कटाव करते आगे बढ़ रही है.

विशंभरपुर में कटाव को रोकने में जुटे मजदूर

कहते हैं अधिकारी

कटाव रोकने के लिये फाइटिंग कार्य तेज कर दिया गया है. कटाव में कमी आयी है. दिन-रात नदी की गतिविधि पर नजर रखी जा रही है. किसी भी हाल में तटबंध को कटने नहीं दिया जायेगा.

महेश्वर शर्मा, कार्यपालक अभियंता, बाढ़ नियंत्रण विभाग.

Prabhat Khabar, Patna - 10.09.2020

Site pictures – Tower locations 26/3 (MG line) and 26/0 (BM line)

Tower location 26/3 (MG line)
Date : 10.09.2020

Tower location 26/0 (BM line)
Date : 10.09.2020

Site pictures – access roads

Access road pictures

sekura

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The Management System of Sekura Energy Ltd. and DMTCL has been approved by Lloyd's Register to: ISO14001:2015, ISO 45001:2018

Report on Ramping Capability > 1% & issues faced by MTPS –II KBUNL as per existing ramping scheduling & Assessment

1. April-20 to Aug-20 – Monthly No of blocks Scheduled ramp rate >=1% & NO of sign changes Ramps in consecutive blocks.

Date	Total no of time blocks	No of time blocks where declared ramp up/down rate >=1%	Td/Tm	No of blocks Scheduled ramp rate >=1%	NO of sign changes Ramps consecutive blocks
	Tm	Td	Td/Tm	D	
Apr-20	2880	2880	1	491	137
May-20	2976	2976	1	530	142
Jun-20	2880	2880	1	438	105
Jul-20	2976	2976	1	237	17
Aug-20	2976	2976	1	220	54
Total	14688	14688	1	1916	455

2. 01-Sept-20 to 7-Sept-20 –Day Basis No of blocks Scheduled ramp rate >=1% & No. of sign changes Ramps in consecutive blocks.

	Total no of time blocks	No of time blocks where declared ramp up/down rate >=1%	Td/Tm	No of blocks Scheduled ramp rate >=1%	NO of sign changes Ramps consecutive blocks
Date	Tm	Td	Td/Tm	D	
01-09-2020	96	96	1	20	5
02-09-2020	96	96	1	27	8
03-09-2020	96	96	1	22	4
04-09-2020	96	96	1	10	4
05-09-2020	96	96	1	20	7
06-09-2020	96	96	1	14	8
07-09-2020	96	96	1	4	1
Total	672	672	1	117	37

3. Exceptional cases where such type of scheduling (consecutive blocks ramp up/down) are more that 50% in a day of total scheduled ramps >1%

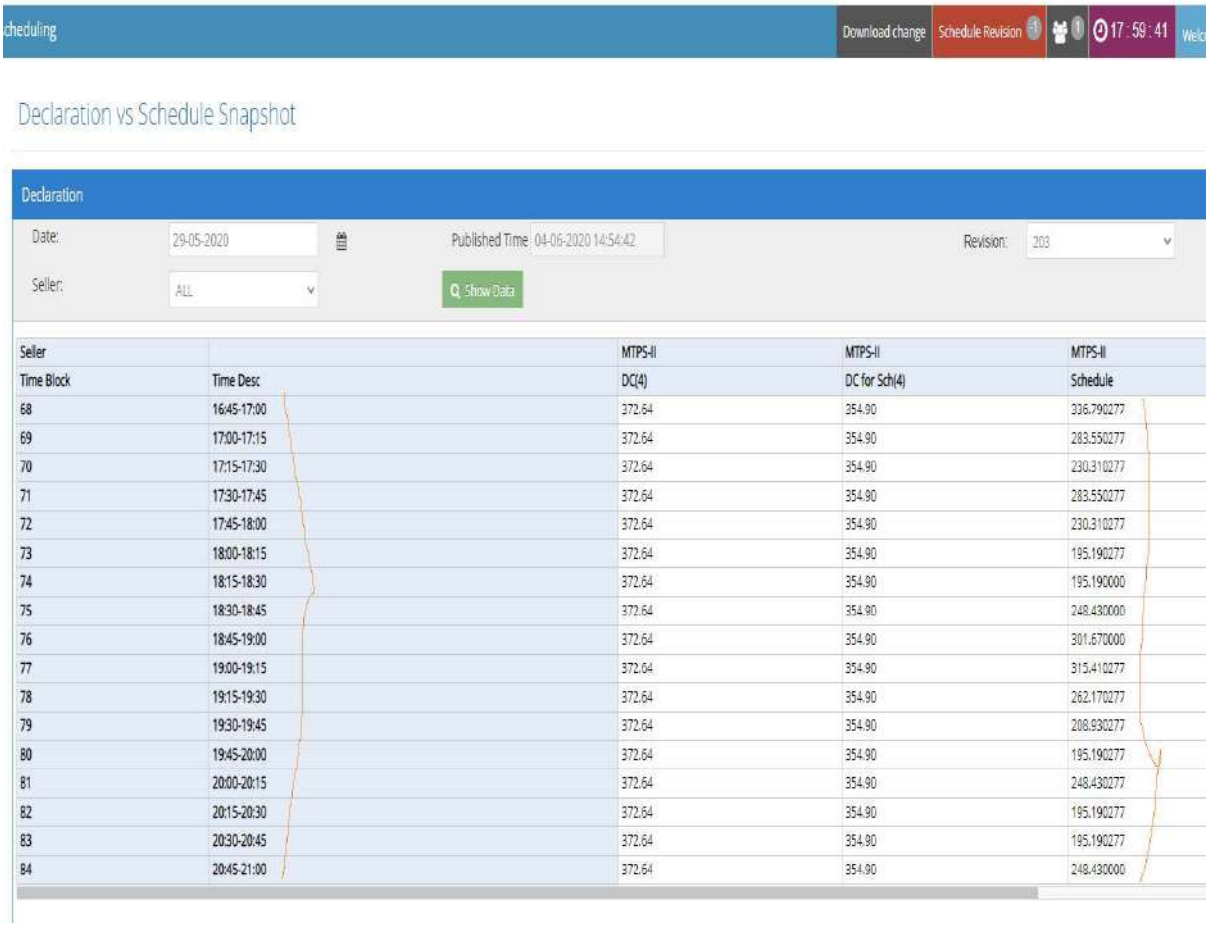
1. 11.04.2020 (B17-B32)
2. 29.05.2020 (B69-B90)
3. 08.06.2020 (B59-B77)
4. 22.08.2020 (B77-B92)
5. 02.09.2020 (B40-B56)
6. 05.09.2020 (B38-B47)
7. 06.09.2020 (B4-B15)

Screen Shot - 11.04.2020 (B17-B32)

Web Based Scheduling
Dec_FullSched(Ex-PP)
Date : 11-04-2020

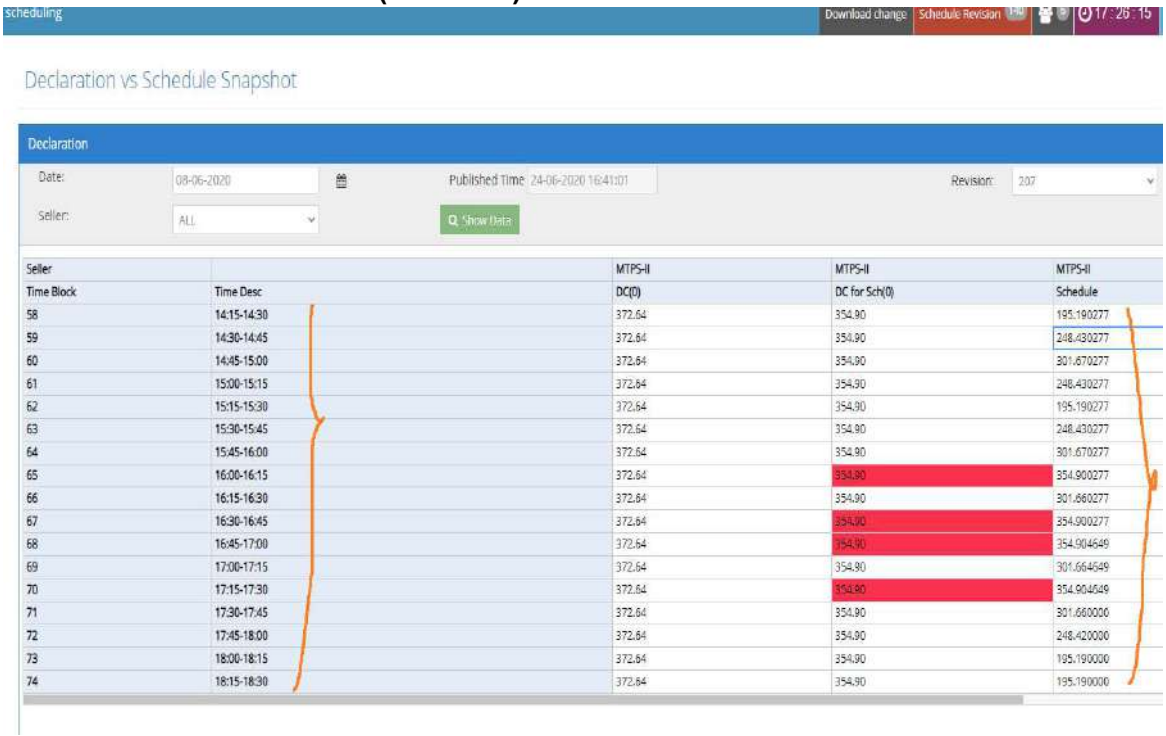
Block No	From Hrs	To Hrs	Frequency	AVL_GIVEN MTPS-II (Ex-PP)	AVL_ACCEPTED MTPS-II (Ex-PP)	SCHED MTPS-II (Ex-PP)
13	03:00	03:15	49.96	372.64	363.77	177.455138
14	03:15	03:30	49.99	372.64	363.77	177.455138
15	03:30	03:45	50.01	372.64	363.77	177.455138
16	03:45	04:00	50.01	372.64	363.77	177.455138
17	04:00	04:15	49.98	372.64	363.77	150.835138
18	04:15	04:30	50.00	372.64	363.77	177.455138
19	04:30	04:45	49.94	372.64	363.77	150.835138
20	04:45	05:00	49.98	372.64	363.77	177.455138
21	05:00	05:15	49.94	372.64	363.77	177.455138
22	05:15	05:30	49.98	372.64	363.77	150.835138
23	05:30	05:45	49.91	372.64	363.77	177.455138
24	05:45	06:00	49.92	372.64	363.77	150.835138
25	06:00	06:15	49.94	372.64	363.77	124.215138
26	06:15	06:30	49.89	372.64	363.77	97.605138
27	06:30	06:45	50.07	372.64	363.77	124.225138
28	06:45	07:00	50.07	372.64	363.77	150.845138
29	07:00	07:15	50.05	372.64	363.77	177.455138
30	07:15	07:30	50.04	372.64	363.77	150.835138
31	07:30	07:45	50.06	372.64	363.77	124.215138
32	07:45	08:00	50.06	372.64	363.77	97.605138
33	08:00	08:15	50.03	372.64	363.77	97.605138
34	08:15	08:30	50.02	372.64	363.77	97.605138
35	08:30	08:45	50.01	372.64	363.77	97.6
36	08:45	09:00	50.02	372.64	363.77	97.6
37	09:00	09:15	49.99	372.64	363.77	97.6
38	09:15	09:30	50.05	372.64	363.77	97.6

Screen Shot - 29.05.2020 (B69-B90)



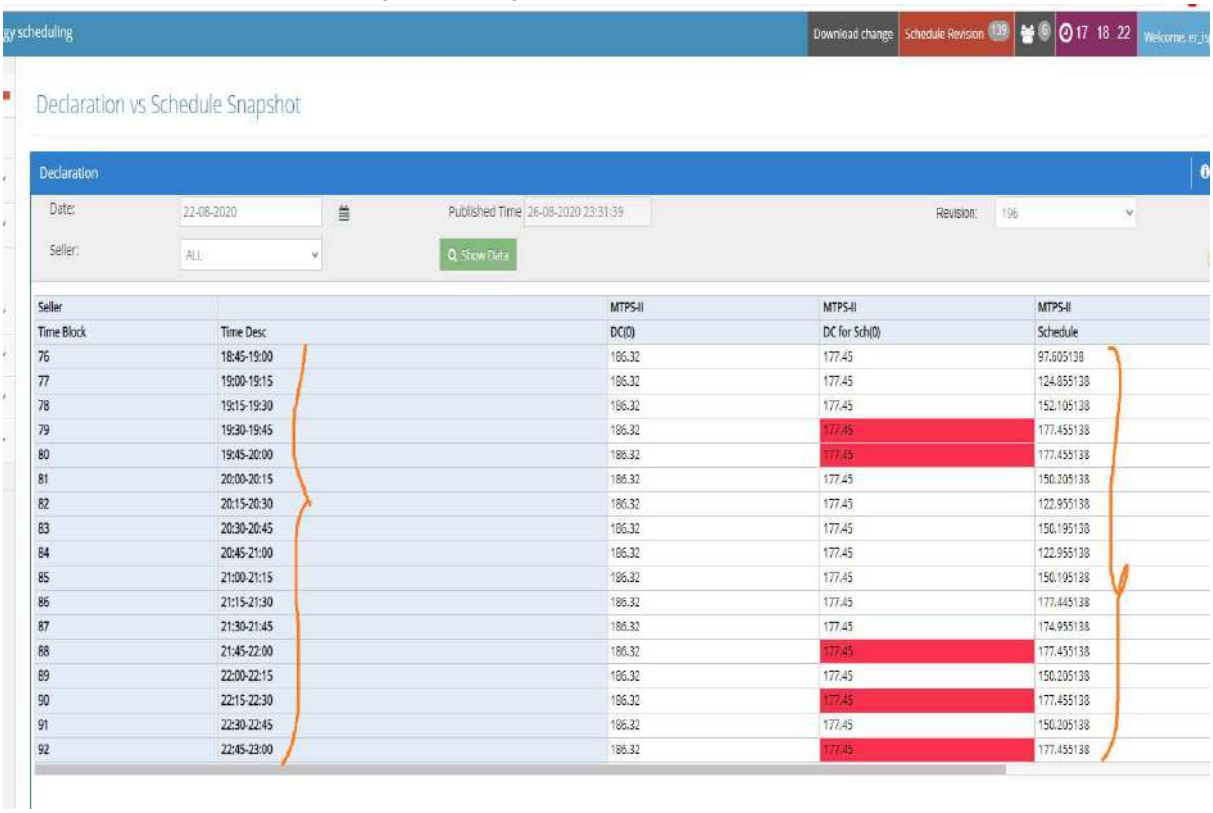
Seller		MTPS-II	MTPS-II	MTPS-II
Time Block	Time Desc	DC(4)	DC for Sch(4)	Schedule
68	16:45-17:00	372.64	354.90	336.790277
69	17:00-17:15	372.64	354.90	283.550277
70	17:15-17:30	372.64	354.90	230.310277
71	17:30-17:45	372.64	354.90	283.550277
72	17:45-18:00	372.64	354.90	230.310277
73	18:00-18:15	372.64	354.90	195.190277
74	18:15-18:30	372.64	354.90	195.190000
75	18:30-18:45	372.64	354.90	248.430000
76	18:45-19:00	372.64	354.90	301.670000
77	19:00-19:15	372.64	354.90	315.410277
78	19:15-19:30	372.64	354.90	262.170277
79	19:30-19:45	372.64	354.90	208.930277
80	19:45-20:00	372.64	354.90	195.190277
81	20:00-20:15	372.64	354.90	248.430277
82	20:15-20:30	372.64	354.90	195.190277
83	20:30-20:45	372.64	354.90	195.190277
84	20:45-21:00	372.64	354.90	248.430000

Screen Shot - 08.06.2020 (B59-B77)



Seller		MTPS-II	MTPS-II	MTPS-II
Time Block	Time Desc	DC(0)	DC for Sch(0)	Schedule
58	14:15-14:30	372.64	354.90	195.190277
59	14:30-14:45	372.64	354.90	248.430277
60	14:45-15:00	372.64	354.90	301.670277
61	15:00-15:15	372.64	354.90	248.430277
62	15:15-15:30	372.64	354.90	195.190277
63	15:30-15:45	372.64	354.90	248.430277
64	15:45-16:00	372.64	354.90	301.670277
65	16:00-16:15	372.64	354.90	354.900277
66	16:15-16:30	372.64	354.90	301.660277
67	16:30-16:45	372.64	354.90	354.900277
68	16:45-17:00	372.64	354.90	354.904649
69	17:00-17:15	372.64	354.90	301.664649
70	17:15-17:30	372.64	354.90	354.904649
71	17:30-17:45	372.64	354.90	301.660000
72	17:45-18:00	372.64	354.90	248.420000
73	18:00-18:15	372.64	354.90	195.190000
74	18:15-18:30	372.64	354.90	195.190000

Screen Shot - 22.08.2020 (B77-B92)



gy scheduling — Download change — Schedule Revision 139 — 17 18 22 — Welcome, er_is

Declaration vs Schedule Snapshot

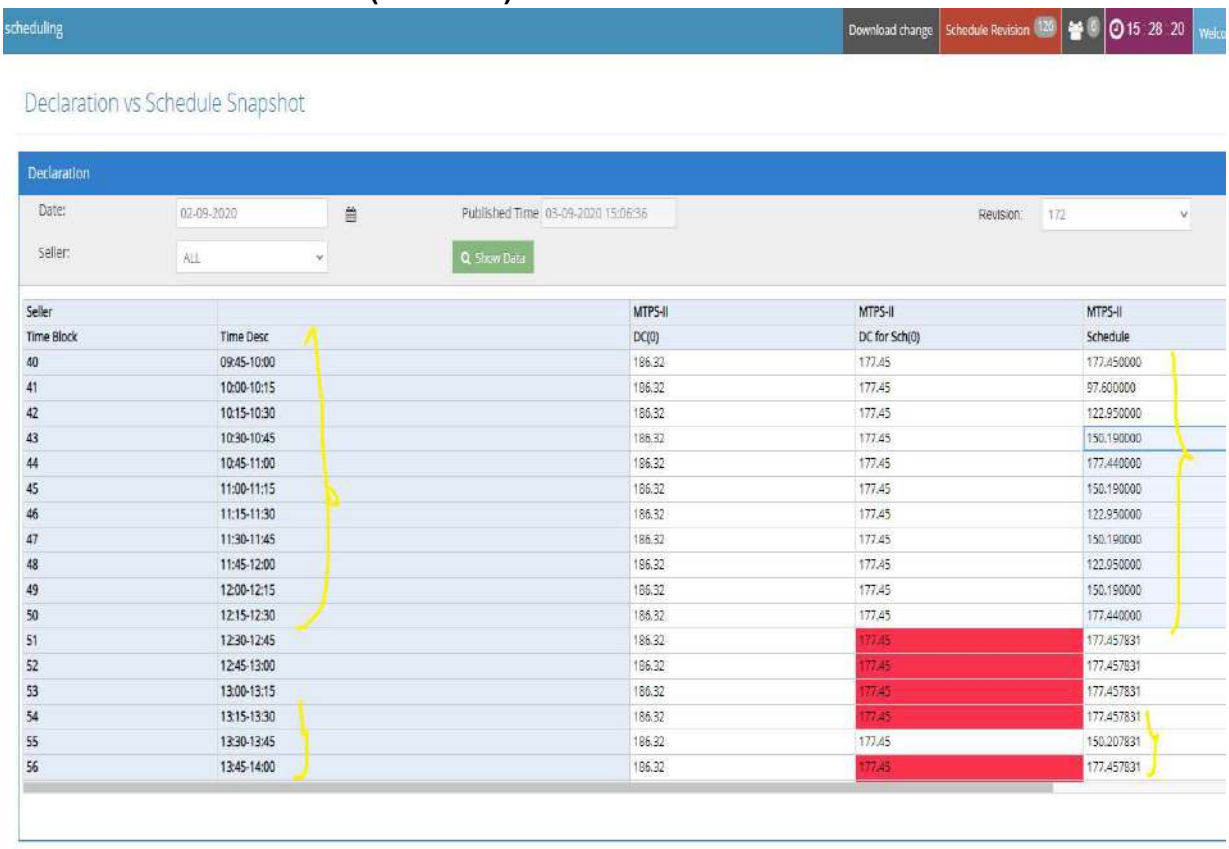
Declaration

Date: 22-08-2020 — Published Time 26-08-2020 23:31:39 — Revision: 196

Seller: ALL — Show Data

Seller		MTPS-II	MTPS-II	MTPS-II
Time Block	Time Desc	DC(0)	DC for Sch(0)	Schedule
76	18:45-19:00	186.32	177.45	97.605138
77	19:00-19:15	186.32	177.45	124.855138
78	19:15-19:30	186.32	177.45	152.105138
79	19:30-19:45	186.32	177.45	177.455138
80	19:45-20:00	186.32	177.45	177.455138
81	20:00-20:15	186.32	177.45	150.205138
82	20:15-20:30	186.32	177.45	122.955138
83	20:30-20:45	186.32	177.45	150.195138
84	20:45-21:00	186.32	177.45	122.955138
85	21:00-21:15	186.32	177.45	150.195138
86	21:15-21:30	186.32	177.45	177.445138
87	21:30-21:45	186.32	177.45	174.955138
88	21:45-22:00	186.32	177.45	177.455138
89	22:00-22:15	186.32	177.45	150.205138
90	22:15-22:30	186.32	177.45	177.455138
91	22:30-22:45	186.32	177.45	150.205138
92	22:45-23:00	186.32	177.45	177.455138

Screen Shot -02.09.2020 (B40-B56)



scheduling — Download change — Schedule Revision 120 — 15 28 20

Declaration vs Schedule Snapshot

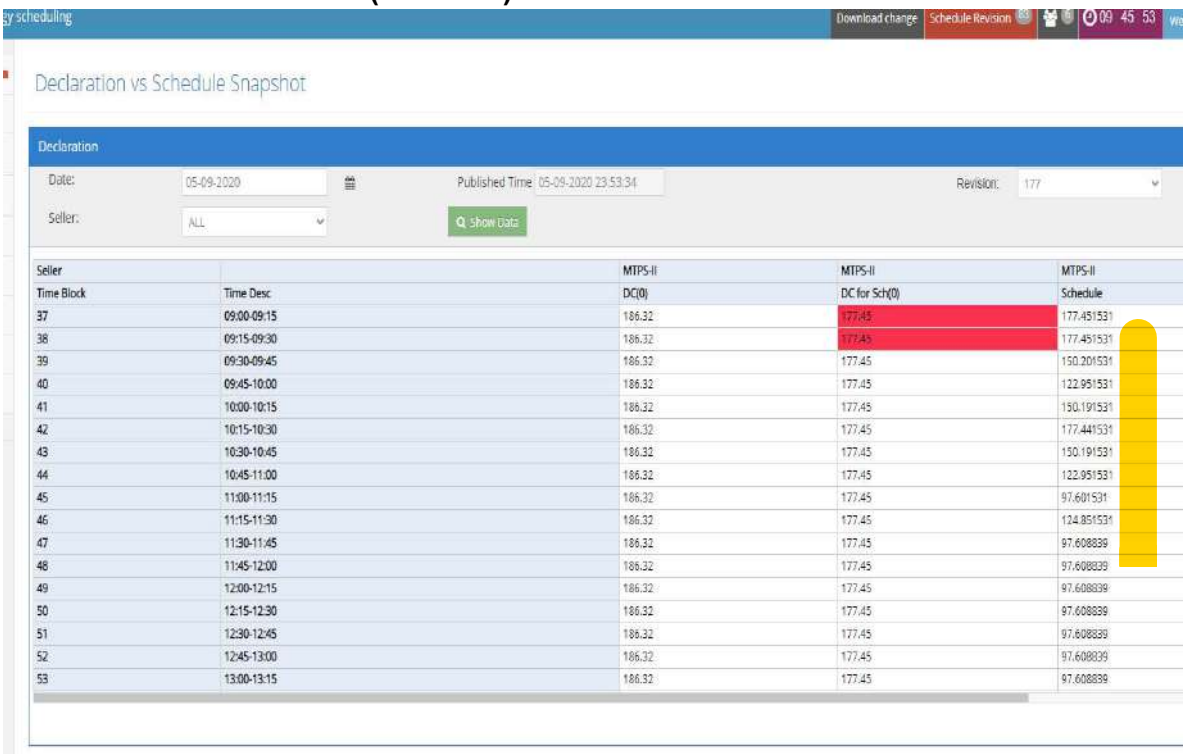
Declaration

Date: 02-09-2020 — Published Time 03-09-2020 15:06:36 — Revision: 172

Seller: ALL — Show Data

Seller		MTPS-II	MTPS-II	MTPS-II
Time Block	Time Desc	DC(0)	DC for Sch(0)	Schedule
40	09:45-10:00	186.32	177.45	177.450000
41	10:00-10:15	186.32	177.45	97.600000
42	10:15-10:30	186.32	177.45	122.950000
43	10:30-10:45	186.32	177.45	150.190000
44	10:45-11:00	186.32	177.45	177.440000
45	11:00-11:15	186.32	177.45	150.190000
46	11:15-11:30	186.32	177.45	122.950000
47	11:30-11:45	186.32	177.45	150.190000
48	11:45-12:00	186.32	177.45	122.950000
49	12:00-12:15	186.32	177.45	150.190000
50	12:15-12:30	186.32	177.45	177.440000
51	12:30-12:45	186.32	177.45	177.457831
52	12:45-13:00	186.32	177.45	177.457831
53	13:00-13:15	186.32	177.45	177.457831
54	13:15-13:30	186.32	177.45	177.457831
55	13:30-13:45	186.32	177.45	150.207831
56	13:45-14:00	186.32	177.45	177.457831

Screen Shot -05.09.2020 (B38-B47)



Declaration vs Schedule Snapshot

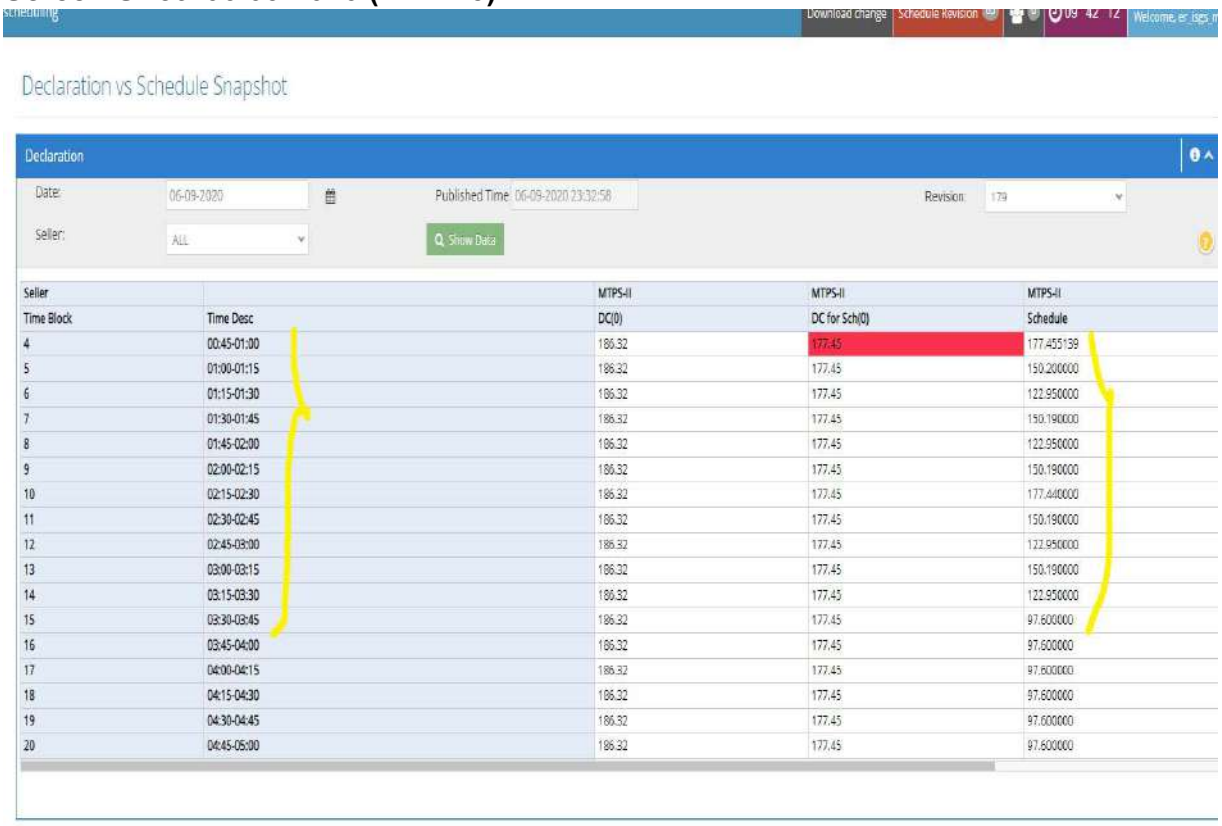
Declaration

Date: 05-09-2020 Published Time: 05-09-2020 23:53:34 Revision: 177

Seller: ALL Show Data

Seller		MTPS-II	MTPS-II	MTPS-II
Time Block	Time Desc	DC(0)	DC for Sch(0)	Schedule
37	09:00-09:15	186.32	177.45	177.451531
38	09:15-09:30	186.32	177.45	177.451531
39	09:30-09:45	186.32	177.45	150.201531
40	09:45-10:00	186.32	177.45	122.951531
41	10:00-10:15	186.32	177.45	150.191531
42	10:15-10:30	186.32	177.45	177.441531
43	10:30-10:45	186.32	177.45	150.191531
44	10:45-11:00	186.32	177.45	122.951531
45	11:00-11:15	186.32	177.45	97.601531
46	11:15-11:30	186.32	177.45	124.851531
47	11:30-11:45	186.32	177.45	97.608839
48	11:45-12:00	186.32	177.45	97.608839
49	12:00-12:15	186.32	177.45	97.608839
50	12:15-12:30	186.32	177.45	97.608839
51	12:30-12:45	186.32	177.45	97.608839
52	12:45-13:00	186.32	177.45	97.608839
53	13:00-13:15	186.32	177.45	97.608839

Screen Shot -06.09.2020 (B4-B15)



Declaration vs Schedule Snapshot

Declaration

Date: 06-09-2020 Published Time: 06-09-2020 23:32:58 Revision: 179

Seller: ALL Show Data

Seller		MTPS-II	MTPS-II	MTPS-II
Time Block	Time Desc	DC(0)	DC for Sch(0)	Schedule
4	00:45-01:00	186.32	177.45	177.455139
5	01:00-01:15	186.32	177.45	150.200000
6	01:15-01:30	186.32	177.45	122.950000
7	01:30-01:45	186.32	177.45	150.190000
8	01:45-02:00	186.32	177.45	122.950000
9	02:00-02:15	186.32	177.45	150.190000
10	02:15-02:30	186.32	177.45	177.440000
11	02:30-02:45	186.32	177.45	150.190000
12	02:45-03:00	186.32	177.45	122.950000
13	03:00-03:15	186.32	177.45	150.190000
14	03:15-03:30	186.32	177.45	122.950000
15	03:30-03:45	186.32	177.45	97.600000
16	03:45-04:00	186.32	177.45	97.600000
17	04:00-04:15	186.32	177.45	97.600000
18	04:15-04:30	186.32	177.45	97.600000
19	04:30-04:45	186.32	177.45	97.600000
20	04:45-05:00	186.32	177.45	97.600000

भारत सरकार/Govt. of India
विद्युत मंत्रालय/Ministry of Power
केन्द्रीय विद्युत प्राधिकरण/Central Electricity Authority
मुख्य विद्युत निरीक्षणालय प्रभाग/Chief Electrical Inspectorate Division
****

Sub: Mandatory inspection for replacement of sub-station equipment during regular maintenance-Reg.

Please refer to letter no. ERPC/MS/Operation/2020/4027-28 dated 01-09-2020 on the above subject, wherein, it is mentioned that during the 170th OCC meeting held on 24.08.2020, SLDCs and Transmission utilities opined that replacement of CT, PT, CVT, CB, LA, Isolator, etc. is a regular maintenance work and such replacement need to be completed within short time span to bring the transmission line into service and availing Electrical Inspector clearance would take time in this Covid-19 pandemic and may create operational constraint for the transmission system. So, necessary clarifications and guidelines for ERPC have been requested for the same for smooth operation of Eastern Regional Grid.

In this regard, it is submitted that CEA (Measures relating to safety and Electric Supply) regulations, 2010 was formed under Section 53 of Electricity Act, 2003 with the **consultation of State Governments** and its sub-section (a) clearly states that measures to be specified for: -
*"protecting the public (including the persons engaged in the generation, transmission or distribution or trading) from dangers arising from the generation, transmission or distribution or trading of electricity, or use of electricity supplied or installation, **maintenance** or use of any electric line or electrical plant;"*

Also, sub- rule 7(2) "Qualifications, Powers and Functions of Chief Electrical Inspector and Electrical Inspectors, Rules, 2006" *states that. -*

*(2) Every supplier, consumer, owner and occupier **shall afford all reasonable facilities** to any such Inspector to make such examinations and tests as may be necessary to satisfy himself as to **the due observance of the safety regulations as specified by the Authority under section 53 of the Act**. The Indian Electricity Rules, 1956 made under section 37 of the Indian Electricity Act, 1910 (now repealed) shall continue to be in force till the regulations under section 53 of the Act are made.*

Further, Sub regulation 43(2) of CEA (Measures relating to Safety and Electric Supply) regulations 2010 (as amended) states that:-

" Before making an application to the Electrical Inspector for permission to commence or recommence supply after an installation has been disconnected for six months and above at voltage exceeding notified voltage to any person, the supplier shall ensure that electric supply lines or apparatus of voltage exceeding

notified voltage belonging to him are placed in position, properly joined and duly completed and examined and the supply of electricity shall not be commenced by the supplier for installations of voltage needing inspection under these regulations unless the provisions of regulations 12 to 29, 33 to 35, 44 to 51 and 55 to 77 have been complied with and the approval in writing of the Electrical Inspector has been obtained by him:

Provided that the supplier may energise the aforesaid electric supply lines or apparatus for the purpose of tests specified in regulation 46."

and *Sub regulation 29*(1) of CEA (Measures relating to Safety and Electric Supply) regulations 2010 (as amended) states that :-

"No electrical installation work, including additions, alterations, repairs and adjustments to existing installations, except such replacement of lamps, fans, fuses, switches, domestic appliances of voltage not exceeding 250V and fittings as in no way alters its capacity or character, shall be carried out upon the premises of or on behalf of any consumer, supplier, owner or occupier for the purpose of supply to such consumer, supplier, owner or occupier except by an electrical contractor licensed in this behalf by the State Government and under the direct supervision of a person holding a certificate of competency and by a person holding a permit issued or recognised by the State Government.

Provided that in the case of works executed for or on behalf of the Central Government and in the case of installations in mines, oil fields and railways, the Central Government and in other cases the State Government, may, by notification in the Official Gazette, exempt on such conditions as it may impose, any such work described therein either generally or in the case of any specified class of consumers, suppliers, owners or occupiers."

In view of the above and to maintain the basic structure and spirit of Electricity Act, 2003 and rules and regulations made thereunder, maintenance, replacement and upgradation work of the utilities need to be approved by concerned Electrical Inspector.

Further in time of Covid pandemic, CEI division/RIOs have been giving provisional approval to cases requiring urgent charging wherever physical inspection is not possible.

This issues with the approval of Chief Engineer, CEI division.

(Rakesh Goyal)
Director

Member Secretary, ERPC, Tollygunj, Kolkatta-700033

CEI/1/4/2020/276 Dated: 07.09.2020

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

Date: 09-09-2020

Report on primary frequency response observed at generators in the Eastern Region for August 2020 events of sudden frequency change

Frequency response characteristics (FRC) have been analyzed pan India for two events of sudden frequency change that occurred in August 2020. 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 06th August 2020 at 13:50:17:640 Hrs, 1348 MW generation loss at Rajasthan in NR.	**50.07 Hz to 49.96 Hz**. Later stabilized at 50.03 Hz.	**46 %**
Event 2: On 13th August 2020 at 07:03:05:480 hrs, 1200 MW generation loss at Jhakri in NR	**49.93 Hz to 49.82 Hz**. Later stabilized at 49.88 Hz.	**47 %**

Summary of the analysis of these events are given below:

1. **In spite of repeated reminders, generation end data (generation output in MW and frequency/speed measured at generator end) and FRCs are yet to be received from few regional generating stations (ISGS and IPP) and SLDCs respectively**. List of such regional generating stations/SLDCs is shown in **table 2**.
2. Based on data received from regional 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.**
3. Based on data received from state generating stations & SLDCs, the performance of state generating stations has been analyzed and summarized in table 4.
4. Some thermal units were found to be running at higher than installed capacity causing their poor response and governor response margin was not available. This practice to be avoided and Governor Response Margin has not to be utilized in line with IEGC regulation.

Table 2: List of regional generating stations/SLDCs from which generation end data/FRC yet to be received (as per status on 08th September 2020)

Generating Station/ SLDC	Event 1	Event 2
JITPL	Data received	**Yet to be received**
Adhunik	**Yet to be received**	**Yet to be received**
Bihar SLDC	**Yet to be received**	**Yet to be received**
Jharkhand SLDC	**Yet to be received**	**Yet to be received**
WB SLDC	**Yet to be received**	**Yet to be received**

Table 3: performance of regional generating stations and state control areas for the events in August 2020*

Generating Station/ SLDC	Event 1	Event 2
NTPC Farakka	**Non-Satisfactory**	**Satisfactory** for unit 4 **Non-Satisfactory** for unit 5 and 6
NTPC Kahalgaon	**Non-Satisfactory** for stage 1 (around 40-70% of ideal response provided) **Satisfactory** for stage 2	**Non-satisfactory** for unit 1 and 2. Other units were not in service.
NTPC Talcher	**Non-Satisfactory**	Stage 2: **Satisfactory** Stage 1: **Non - Satisfactory**
NTPC Barh	**Non-Satisfactory** (Around 50 - 60% of ideal response was provided by both units)	**Non-Satisfactory** (Unit 1: 60%; Unit 2: 20% of ideal response)
NTPC Darlipalli	No unit was in service	No unit was in service
BRBCL	**Satisfactory**	**Non-Satisfactory**
NPGC Nabinagar	**Non-Satisfactory** (Around 50% of ideal response was provided)	**Non-Satisfactory** (Around 30% of ideal response was provided)
GMR	Unit 1: **Non-Satisfactory** Unit 2: **Satisfactory**	**Satisfactory**
JITPL	**Non-Satisfactory**	**Non-Satisfactory** (as per as per FRC calculation of ERLDC SCADA data)
MPL	**Non-Satisfactory** (Around 50 - 60% of ideal response was provided by both units)	**Non-Satisfactory** (Around 50 - 60% of ideal response was provided by both units)
Adhunik	**Satisfactory** (Around 84% of ideal response as per FRC calculation of ERLDC SCADA data)	**Non-Satisfactory** (Around 52% of ideal response as per FRC calculation of ERLDC SCADA data)
Teesta V HEP	Unit was being run at full capacity (trash accumulation in the Intake gate and high TRT level)	Unit was being run at more than installed capacity.
Teesta III HEP	No margin was available	No margin was available
Dikchu HEP	No margin was available	No margin was available
Bihar SLDC	**Non-Satisfactory** (as per as per FRC calculation of ERLDC SCADA data)	**Non-Satisfactory** (as per as per FRC calculation of ERLDC SCADA data)
Jharkhand SLDC	**Non-Satisfactory** (as per as per FRC calculation of ERLDC SCADA data)	**Satisfactory** (Around 170% of ideal response as per FRC calculation of ERLDC SCADA data)
DVC SLDC	**Satisfactory** (FRC was around 93% of ideal response)	**Non-Satisfactory** (FRC was around 29% of ideal response)
GRIDCO SLDC	**Satisfactory** (FRC was around 144% of ideal response as per ERLDC SCADA data)	**Non-Satisfactory** (FRC was around 32% of ideal response as per ERLDC SCADA data)
WB SLDC	**Non-Satisfactory** (as per as per FRC calculation of ERLDC SCADA data)	**Non-Satisfactory** (Around 47% of ideal response as per FRC calculation of ERLDC SCADA data)

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

Table 4: performance of state generating stations for the events in August 2020 (Based on data received from SLDC/generating stations) **

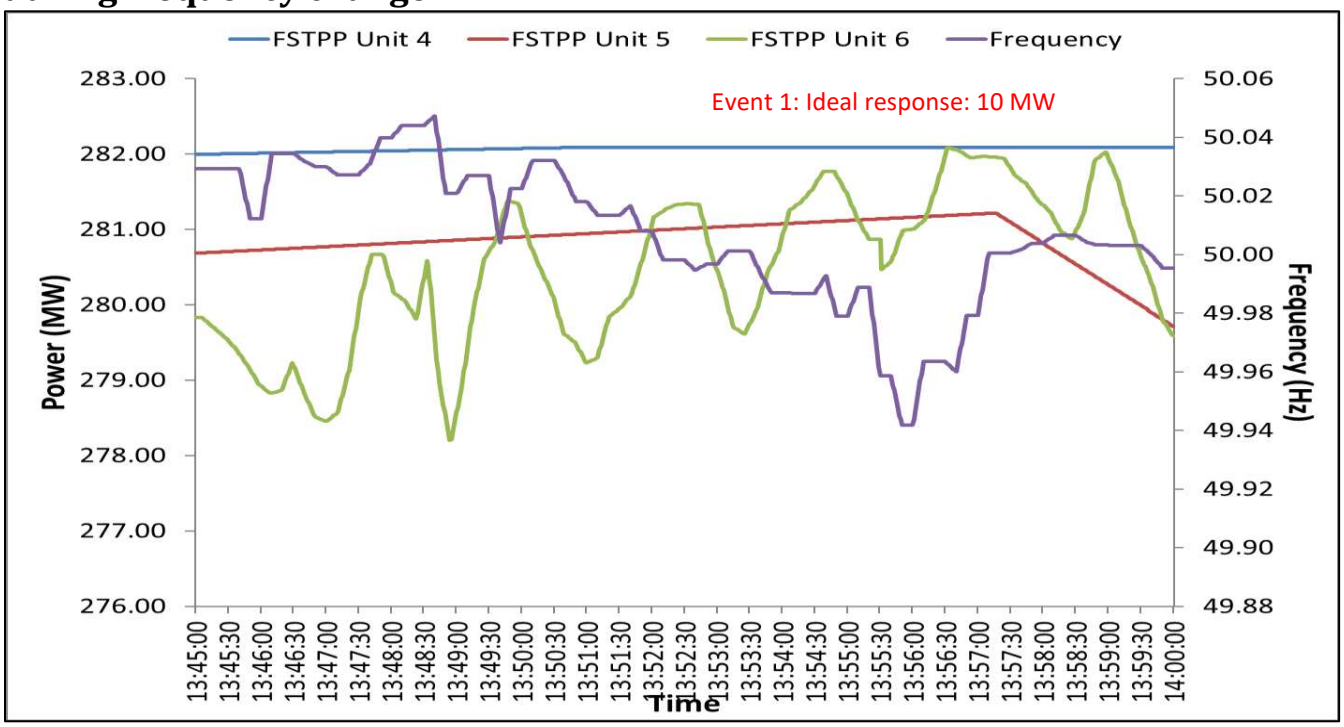
Generating Station	Event 1	Event 2	SLDC to respond
Koderma	**Non-Satisfactory** (Response was around 50 – 60% of ideal response)	**Non-Satisfactory** (Units were being run at I/C or more than I/C)	DVC SLDC
RTPS	**Non-Satisfactory**	**Unit 1: Satisfactory** **Unit 2: Non-Satisfactory**	
DSTPS (Andal)	**Satisfactory** Amount of response reduced within 1 min	**Non-Satisfactory**	
Mejia B	**Non-Satisfactory** (Response was around 50 – 60% of ideal response)	**Satisfactory**	
Mejia	**Non-Satisfactory**	**Non-Satisfactory**	
HEL	**Satisfactory** Response did not last for more than 1 min	**Satisfactory** (Unit 2 was being run at more than I/C)	WB SLDC
BBGS	**Non-Satisfactory,** Unit 3 was being run at more than I/C	**Satisfactory** for unit 1**, Non-Satisfactory** for others units**.** Unit 3 was being run at more than I/C	

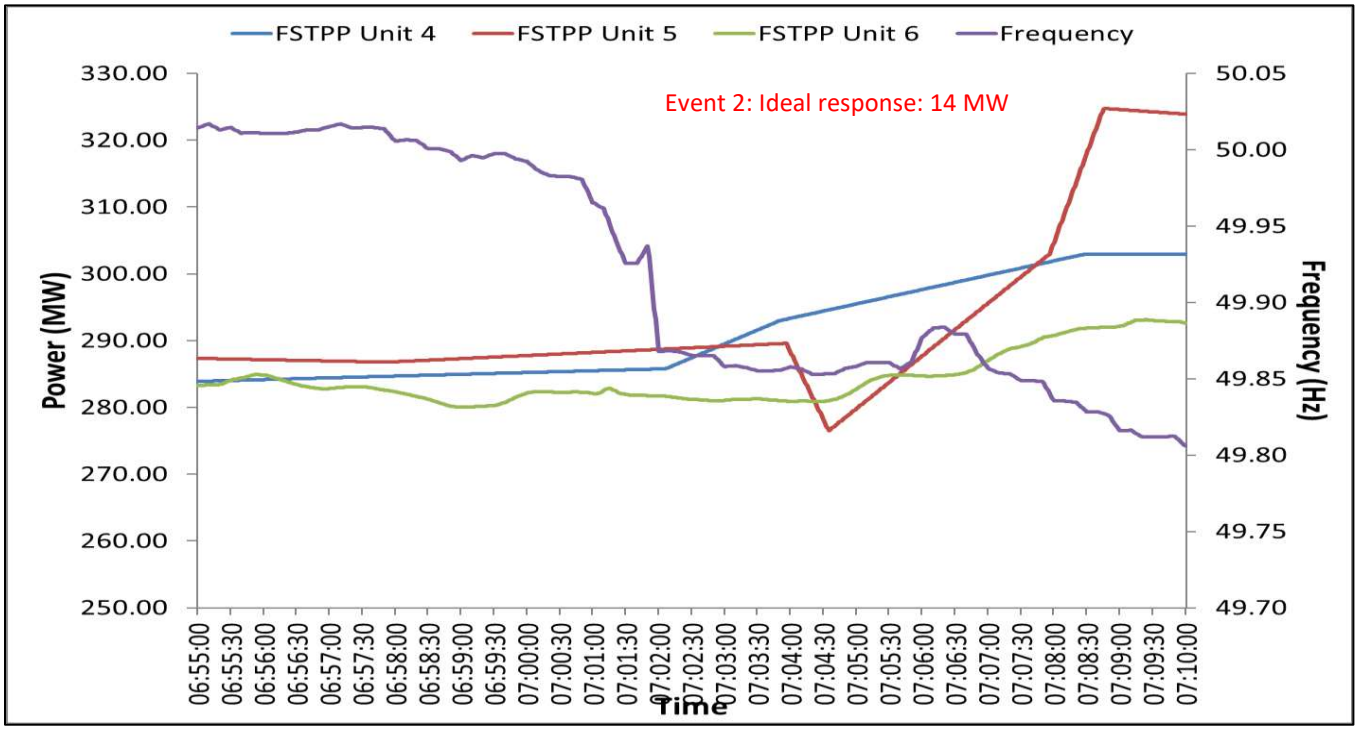
****Response of these generating stations are shown in Annexure 2**

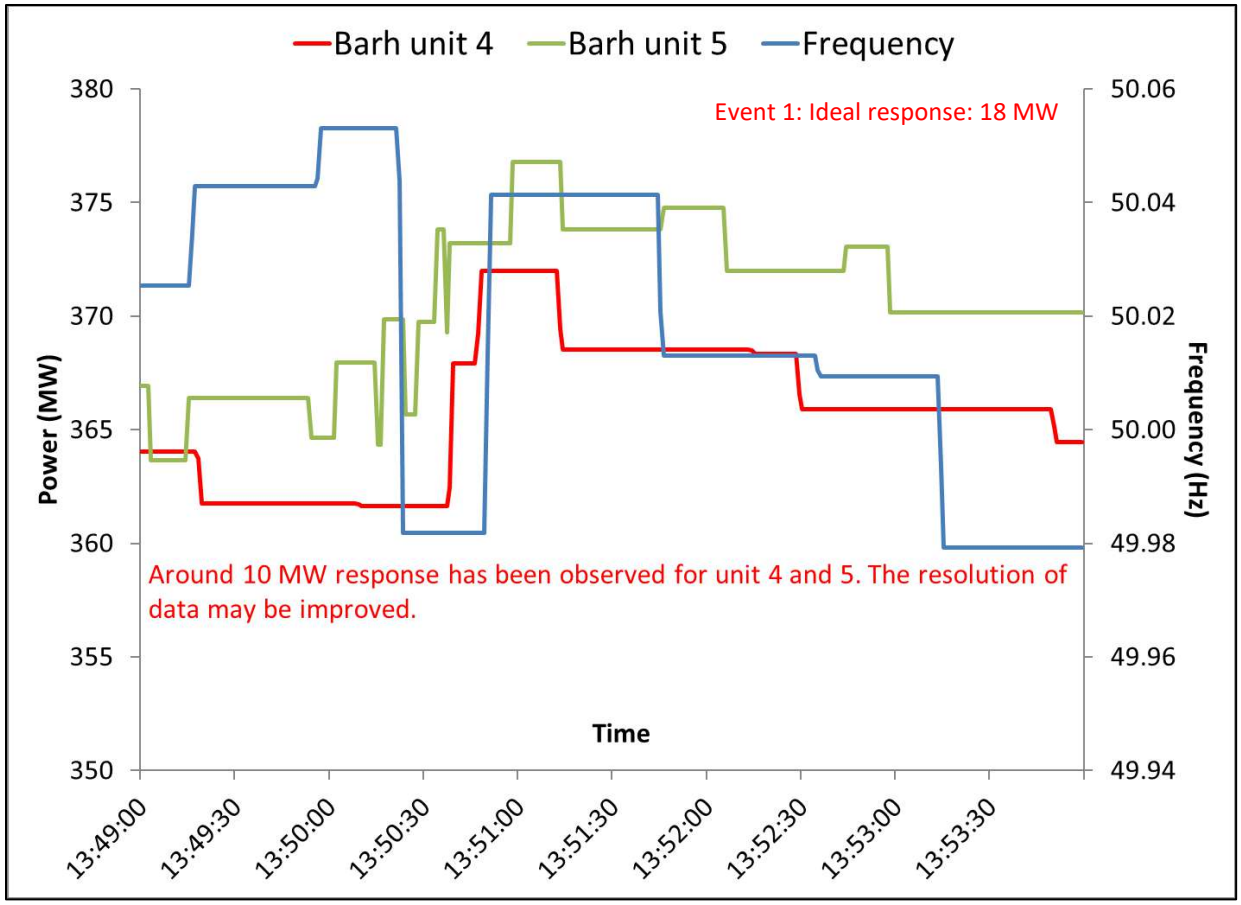
Remarks on the governor response observed at generating stations:

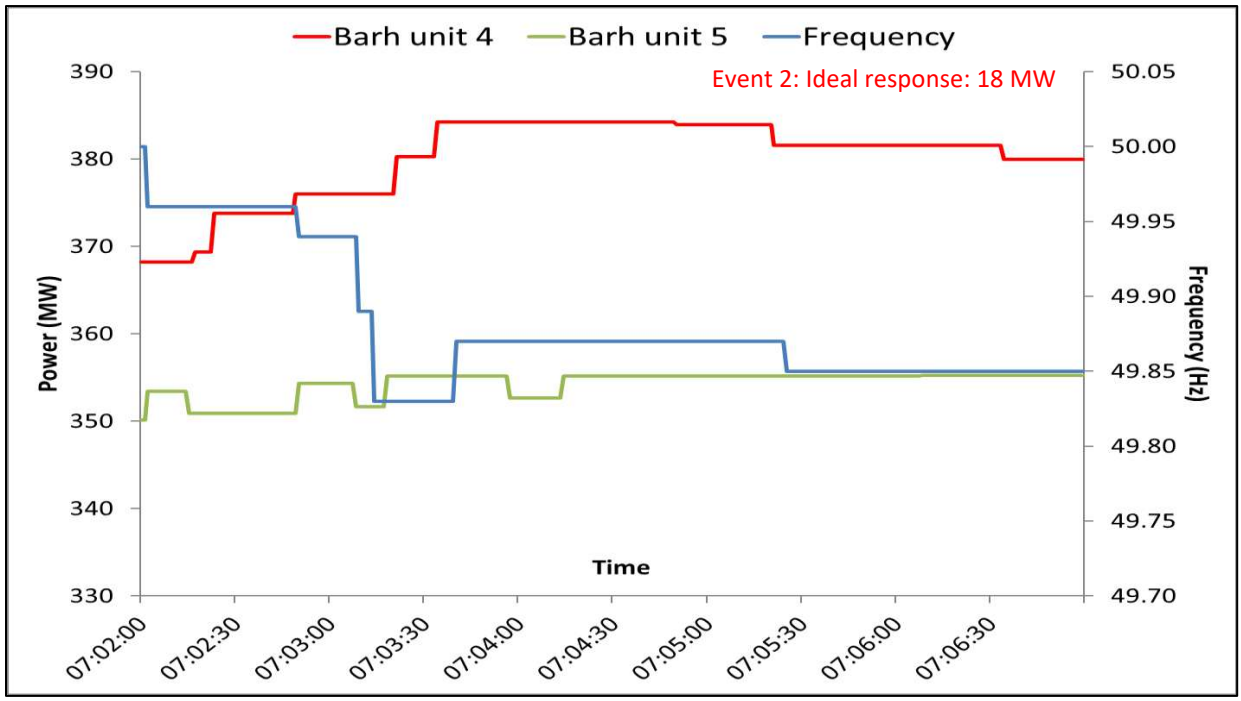
- **NTPC Barh**: Resolution of data shared during both events may be improved. **Data resolution issue has been intimated during previous events also.**
- **JITPL**: During event 1, Initial response was non-satisfactory and did not last for more than 10 seconds during event 1. Another response has been observed within 1 min. But second response was also non-satisfactory and did not last for more than 1 min. Generator end data for second event is yet to be received.
- **Talcher**: Duration of response provided by unit 5 during event 2 may be increased.
- **NPGC Nabinagar**: Response provided during event 1 was not stable. During event 2, response was stable but time taken to provide full response may be reduced.
- **GMR**: Time taken by unit 1 for providing full response during event 1 may be reduced.

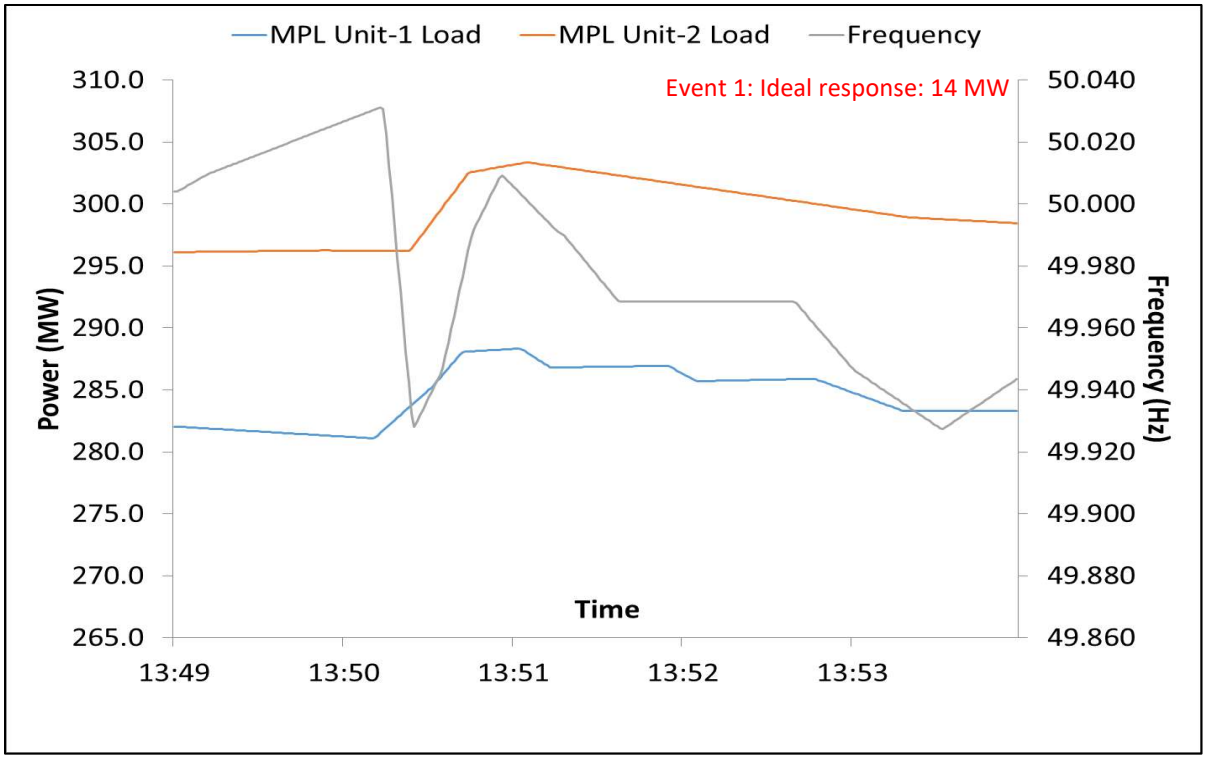
Annexure 1: Variation of generation of regional generating stations during frequency change

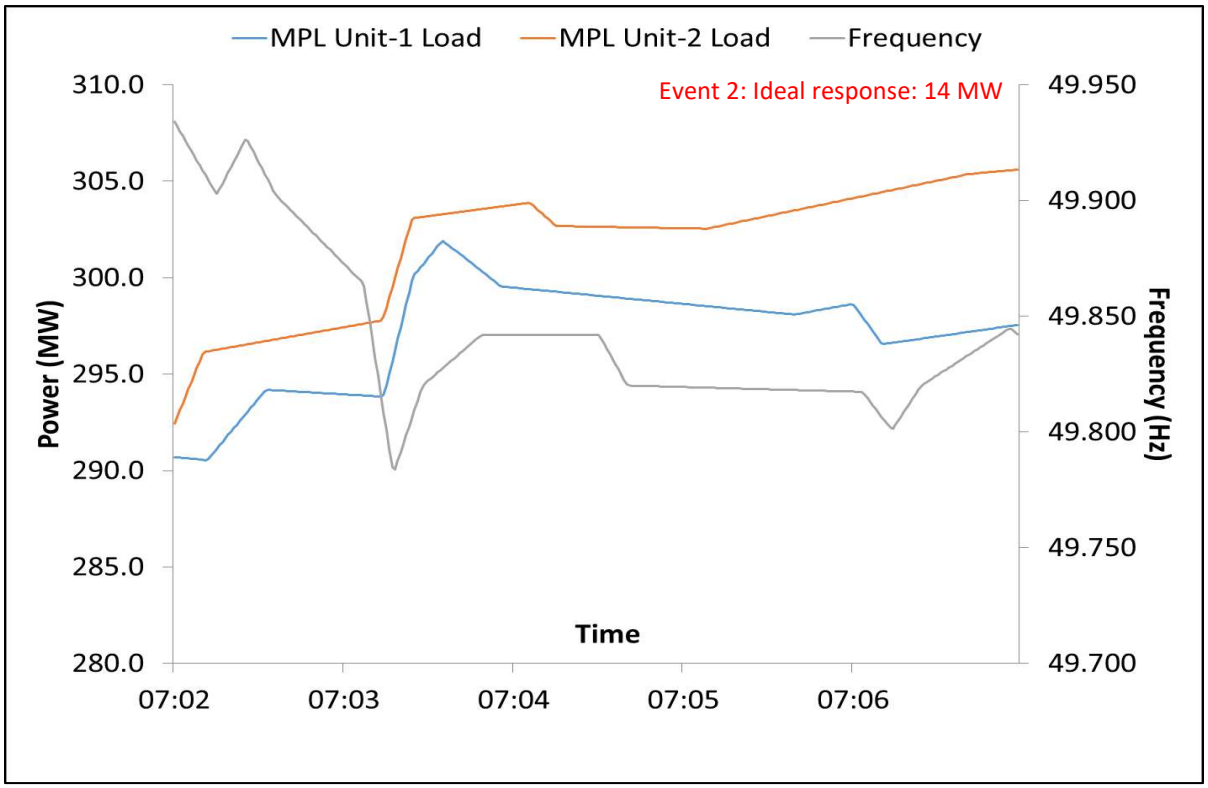


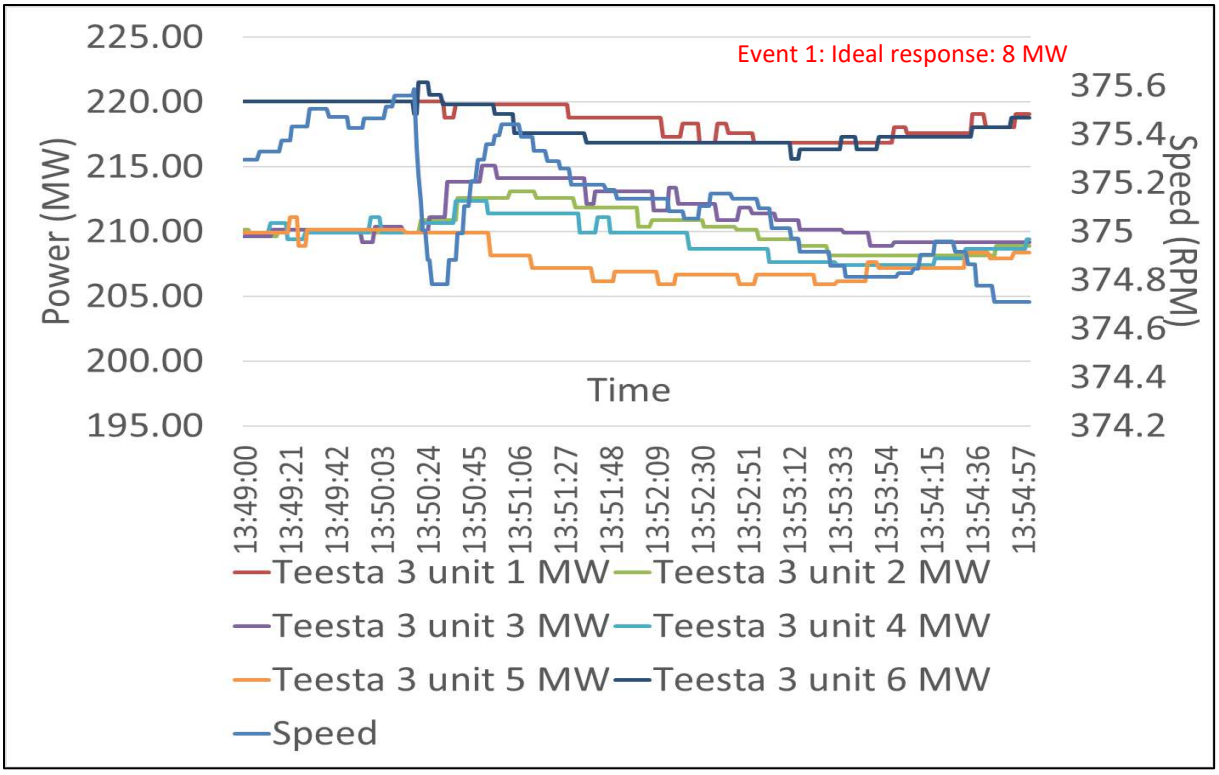


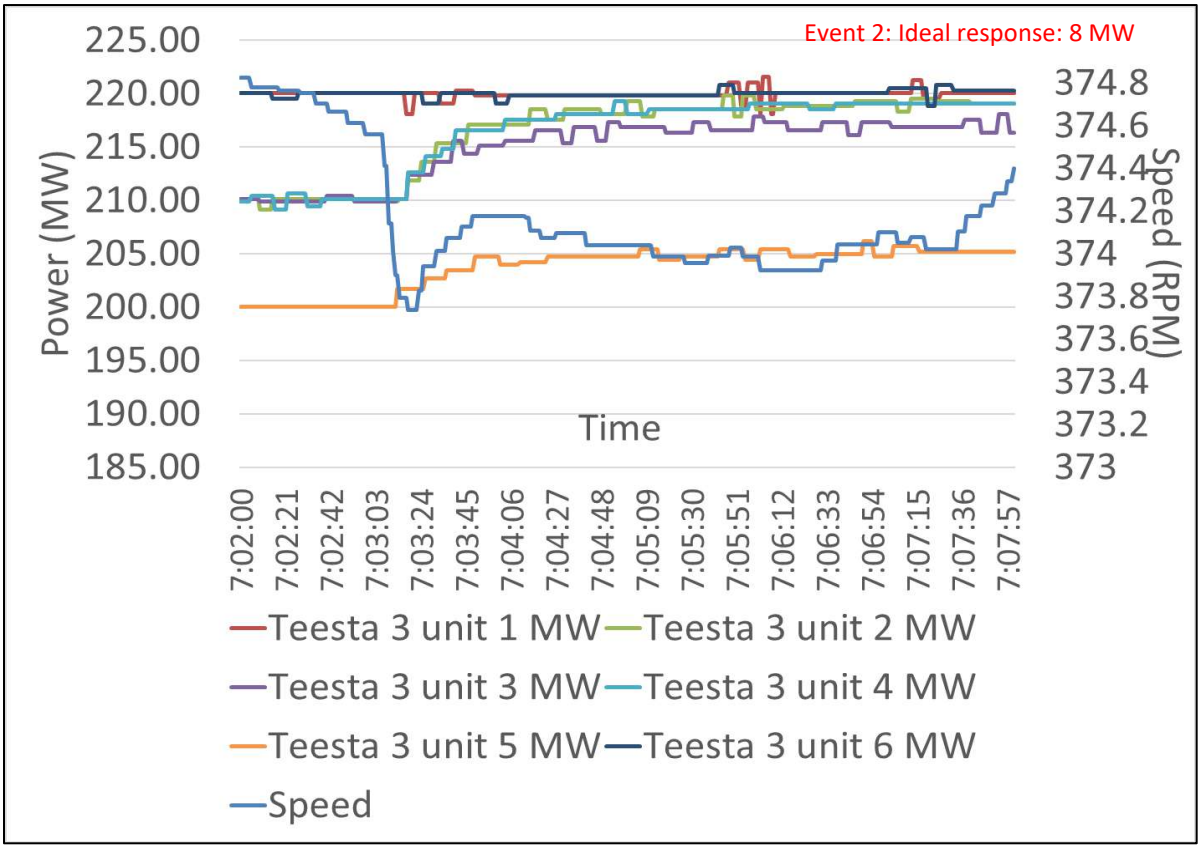

Barh unit 4
Barh unit 5
Frequency
Event 1: Ideal response: 18 MW
Around 10 MW response has been observed for unit 4 and 5. The resolution of data may be improved.
Power (MW)
Frequency (Hz)
Time
380
375
370
365
360
355
350
50.06
50.04
50.02
50.00
49.98
49.96
49.94
13:49:00
13:49:30
13:50:00
13:50:30
13:51:00
13:51:30
13:52:00
13:52:30
13:53:00
13:53:30

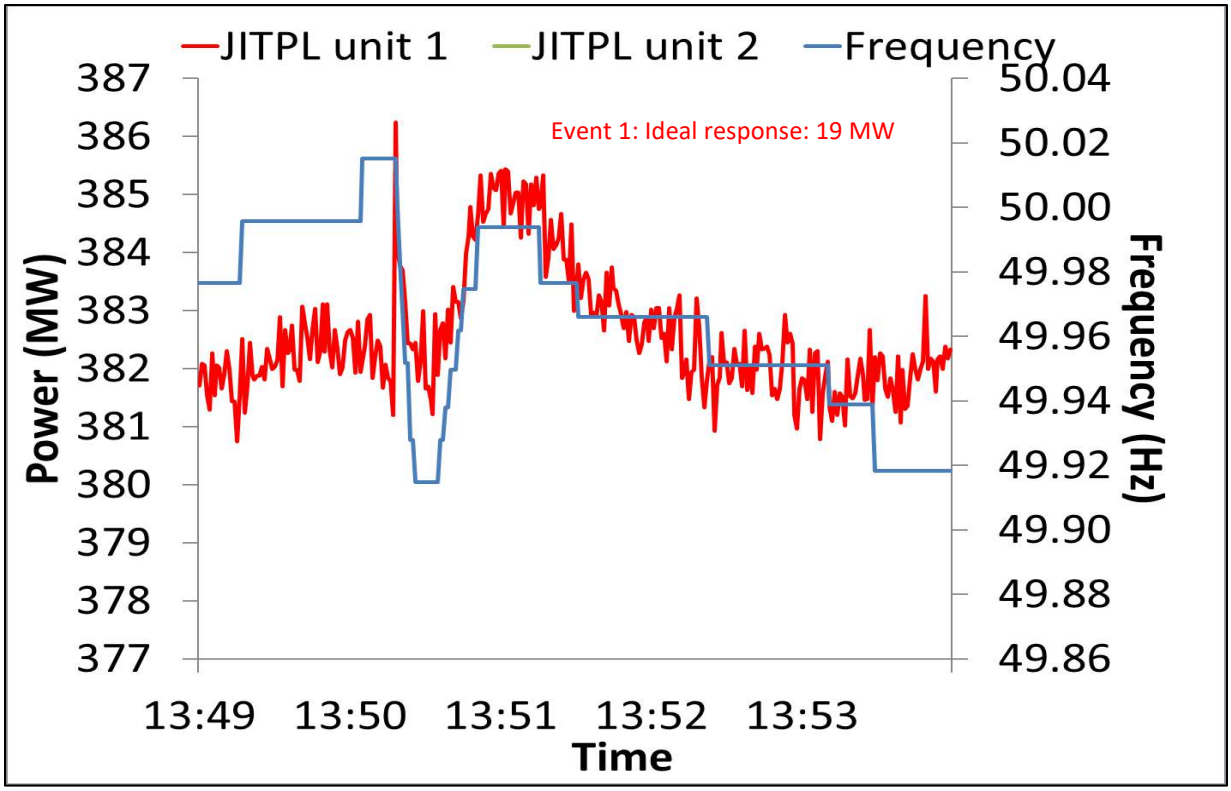

Barh unit 4
Barh unit 5
Frequency
Event 2: Ideal response: 18 MW
Power (MW)
Frequency (Hz)
Time
390
380
370
360
350
340
330
50.05
50.00
49.95
49.90
49.85
49.80
49.75
49.70
07:02:00
07:02:30
07:03:00
07:03:30
07:04:00
07:04:30
07:05:00
07:05:30
07:06:00
07:06:30

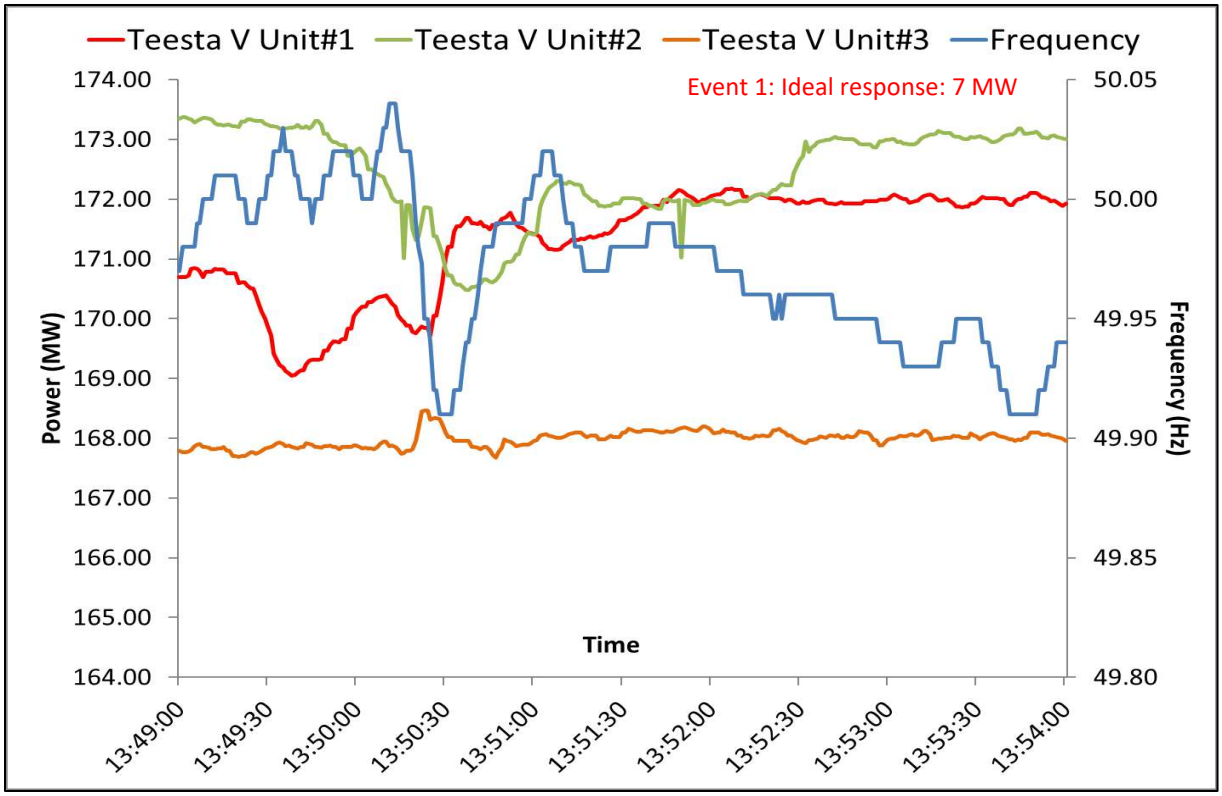

MPL Unit-1 Load
MPL Unit-2 Load
Frequency
Event 1: Ideal response: 14 MW
Power (MW)
Frequency (Hz)
Time
310.0
305.0
300.0
295.0
290.0
285.0
280.0
275.0
270.0
265.0
50.040
50.020
50.000
49.980
49.960
49.940
49.920
49.900
49.880
49.860
13:49
13:50
13:51
13:52
13:53

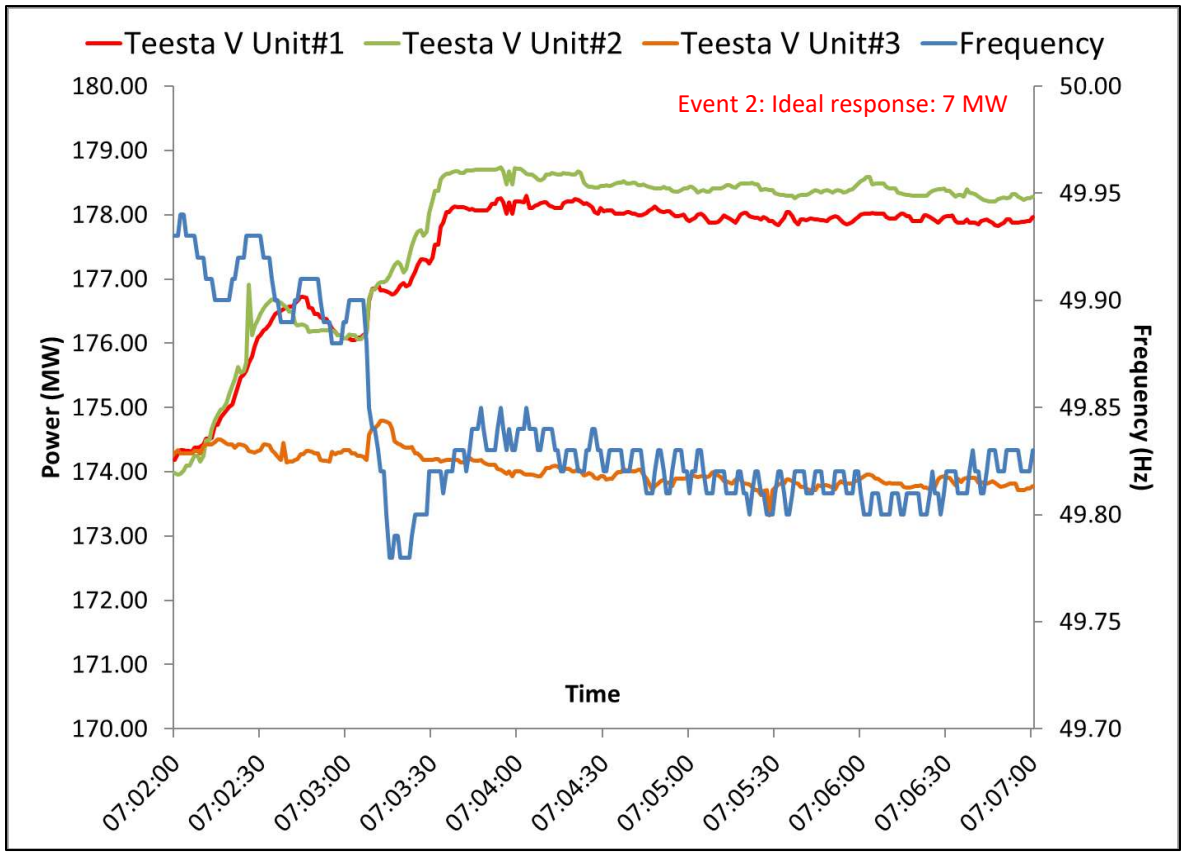

MPL Unit-1 Load
MPL Unit-2 Load
Frequency
Event 2: Ideal response: 14 MW
Power (MW)
Frequency (Hz)
Time
310.0
305.0
300.0
295.0
290.0
285.0
280.0
49.950
49.900
49.850
49.800
49.750
49.700
07:02
07:03
07:04
07:05
07:06

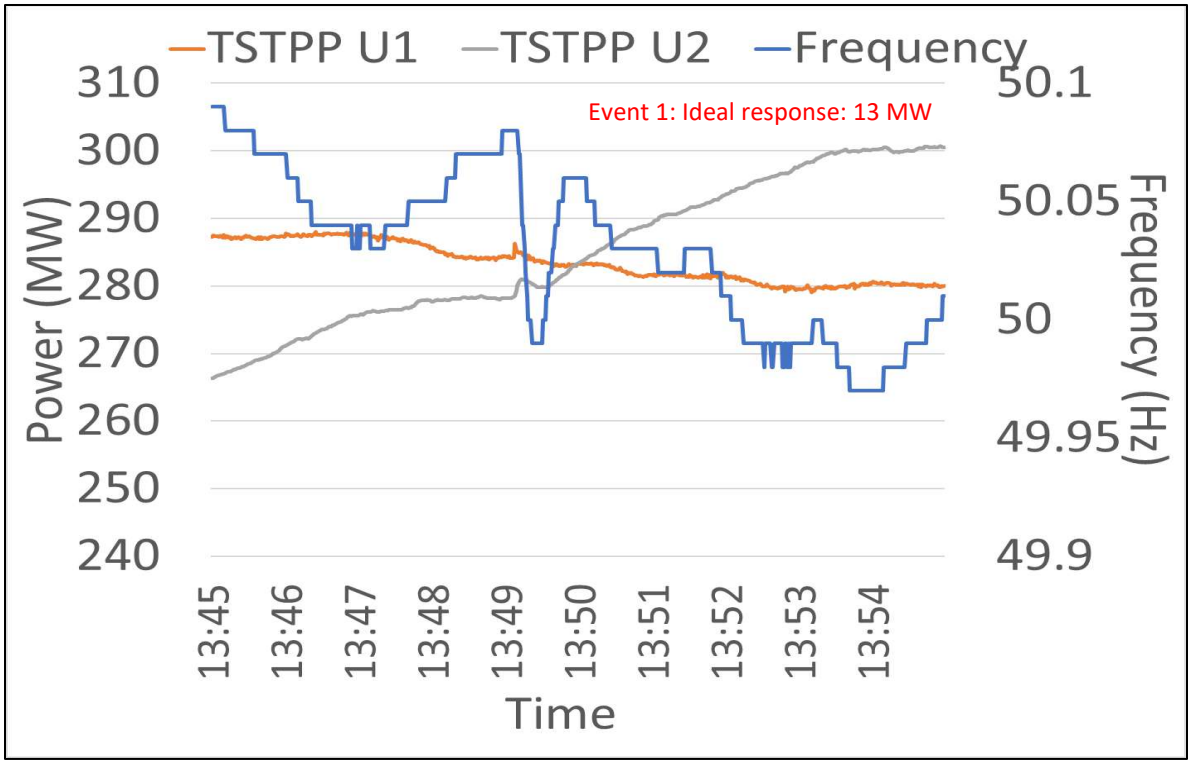

Event 1: Ideal response: 8 MW
Power (MW)
225.00
220.00
215.00
210.00
205.00
200.00
195.00
Speed (RPM)
375.6
375.4
375.2
375
374.8
374.6
374.4
374.2
Time
13:49:00
13:49:21
13:49:42
13:50:03
13:50:24
13:50:45
13:51:06
13:51:27
13:51:48
13:52:09
13:52:30
13:52:51
13:53:12
13:53:33
13:53:54
13:54:15
13:54:36
13:54:57
Teesta 3 unit 1 MW
Teesta 3 unit 2 MW
Teesta 3 unit 3 MW
Teesta 3 unit 4 MW
Teesta 3 unit 5 MW
Teesta 3 unit 6 MW
Speed

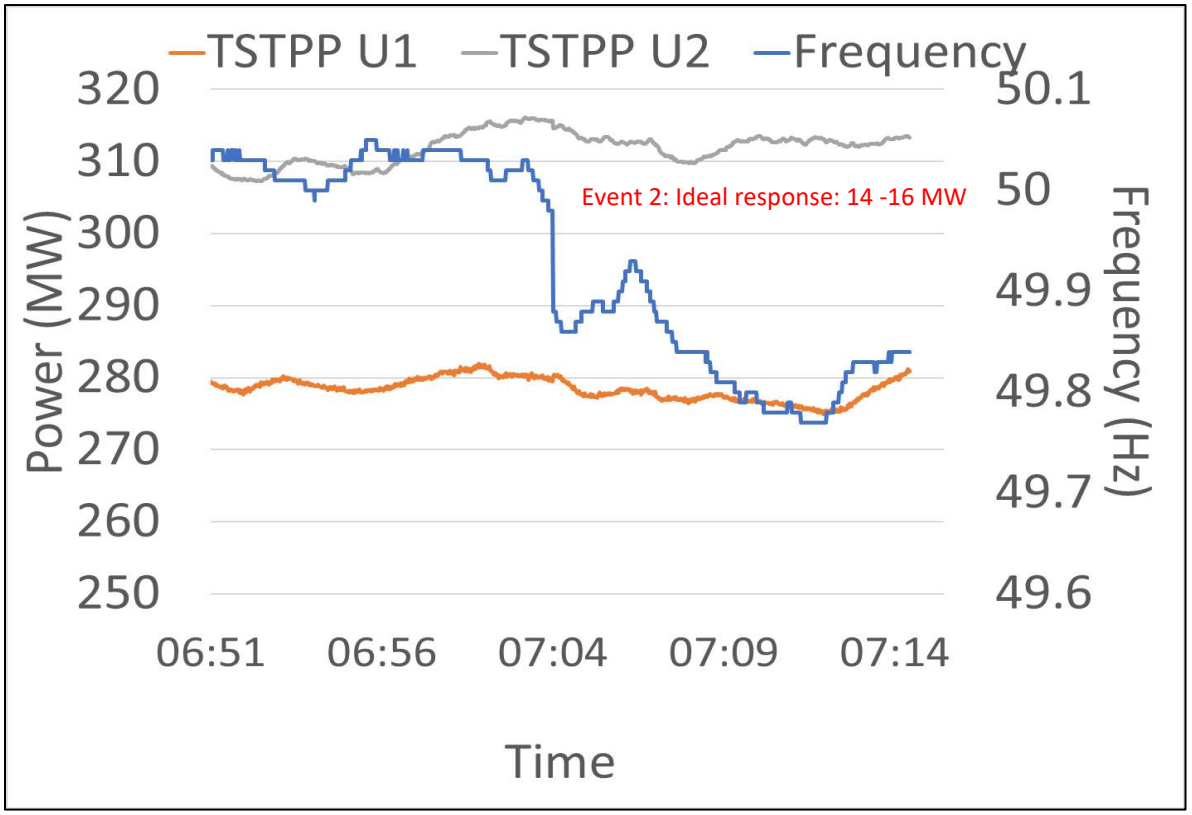

Event 2: Ideal response: 8 MW
Power (MW)
225.00
220.00
215.00
210.00
205.00
200.00
195.00
190.00
185.00
Speed (RPM)
374.8
374.6
374.4
374.2
374
373.8
373.6
373.4
373.2
373
Time
7:02:00
7:02:21
7:02:42
7:03:03
7:03:24
7:03:45
7:04:06
7:04:27
7:04:48
7:05:09
7:05:30
7:05:51
7:06:12
7:06:33
7:06:54
7:07:15
7:07:36
7:07:57
Teesta 3 unit 1 MW
Teesta 3 unit 2 MW
Teesta 3 unit 3 MW
Teesta 3 unit 4 MW
Teesta 3 unit 5 MW
Teesta 3 unit 6 MW
Speed

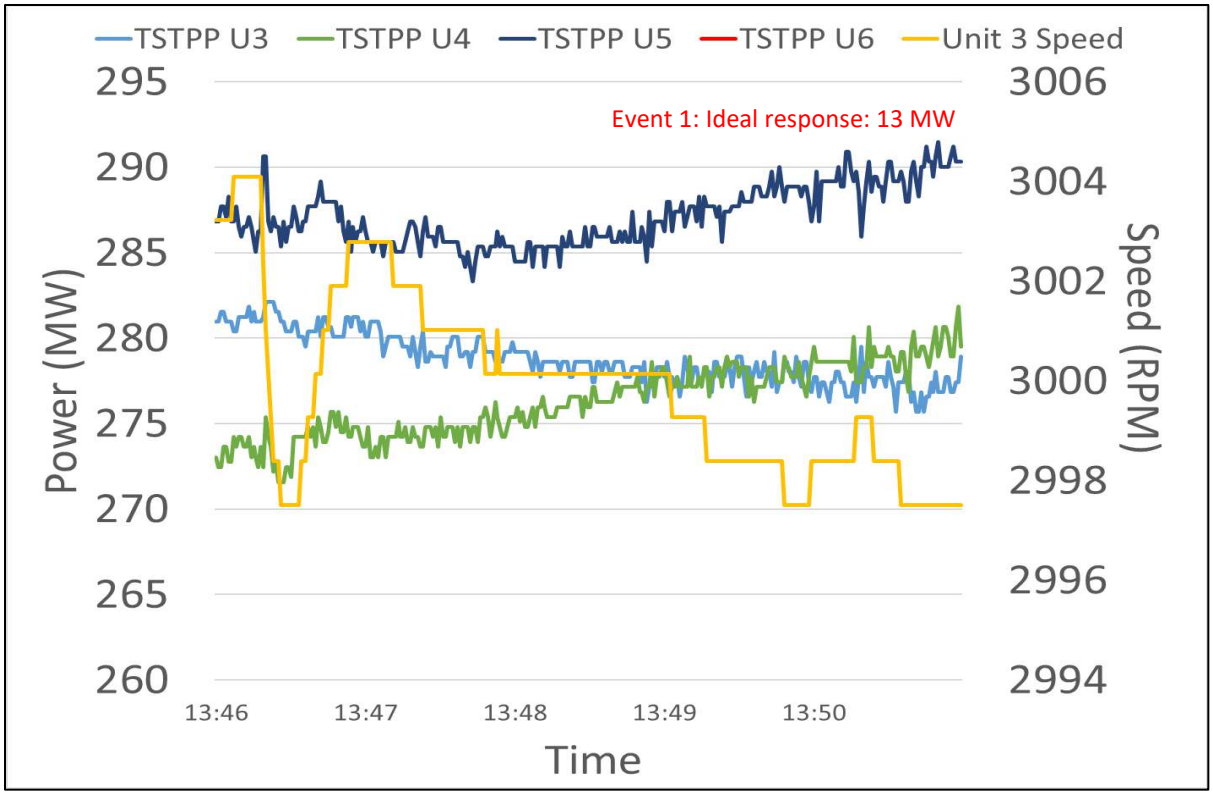

JITPL unit 1
JITPL unit 2
Frequency
Event 1: Ideal response: 19 MW
Power (MW)
Frequency (Hz)
387
386
385
384
383
382
381
380
379
378
377
50.04
50.02
50.00
49.98
49.96
49.94
49.92
49.90
49.88
49.86
13:49
13:50
13:51
13:52
13:53
Time

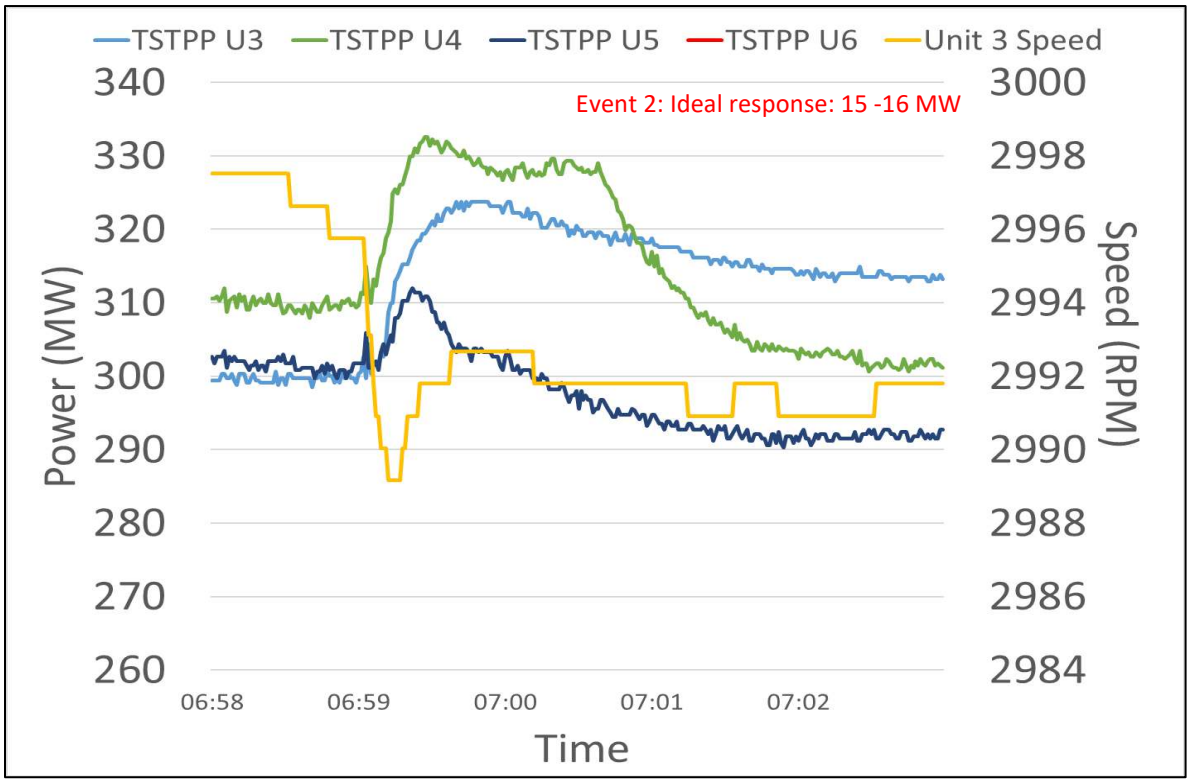

Teesta V Unit#1
Teesta V Unit#2
Teesta V Unit#3
Frequency
Event 1: Ideal response: 7 MW
Power (MW)
Frequency (Hz)
Time
174.00
173.00
172.00
171.00
170.00
169.00
168.00
167.00
166.00
165.00
164.00
50.05
50.00
49.95
49.90
49.85
49.80
13:49:00
13:49:30
13:50:00
13:50:30
13:51:00
13:51:30
13:52:00
13:52:30
13:53:00
13:53:30
13:54:00

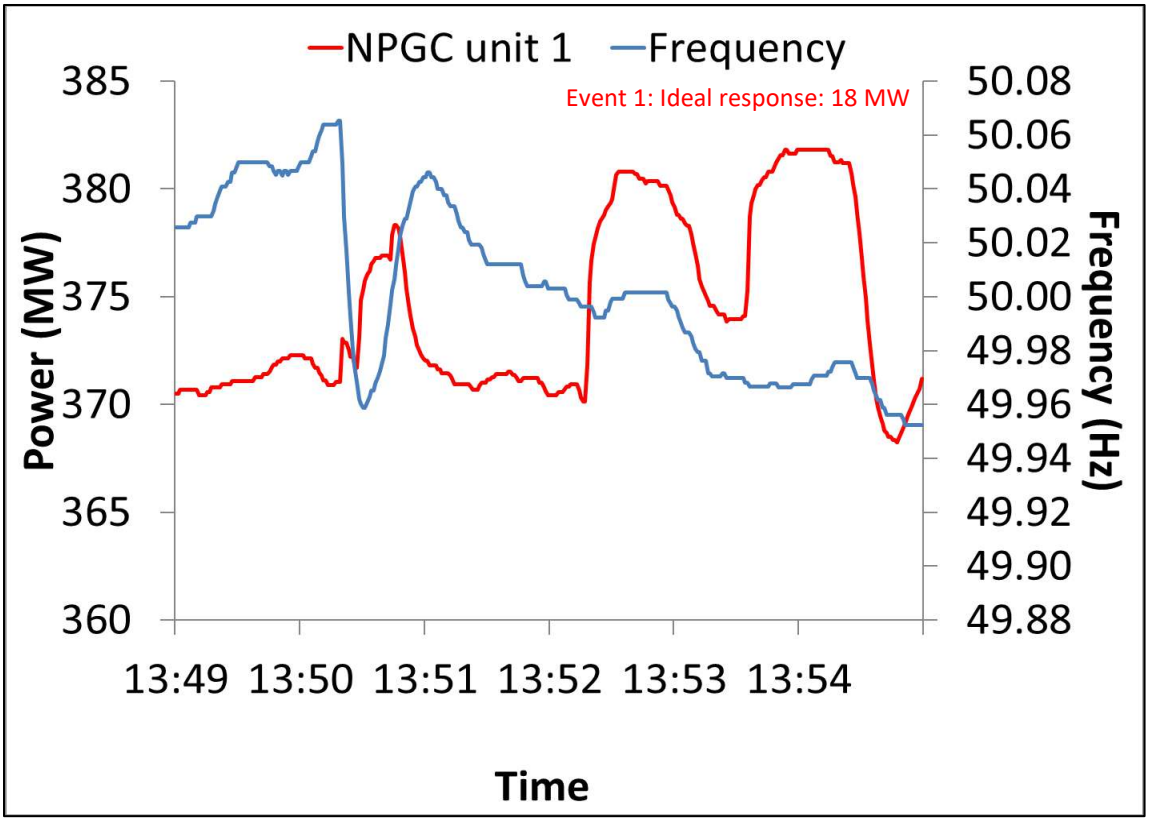

Teesta V Unit#1
Teesta V Unit#2
Teesta V Unit#3
Frequency
Event 2: Ideal response: 7 MW
Power (MW)
Frequency (Hz)
Time
180.00
179.00
178.00
177.00
176.00
175.00
174.00
173.00
172.00
171.00
170.00
50.00
49.95
49.90
49.85
49.80
49.75
49.70
07:02:00
07:02:30
07:03:00
07:03:30
07:04:00
07:04:30
07:05:00
07:05:30
07:06:00
07:06:30
07:07:00

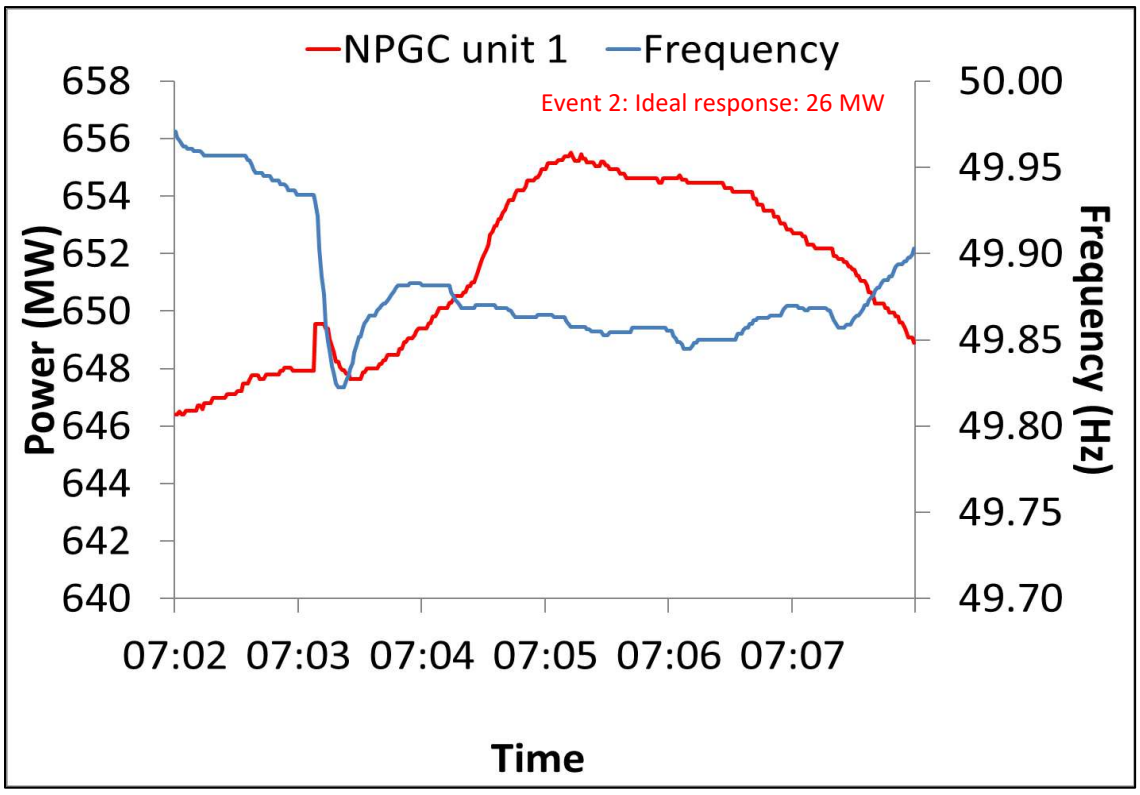

TSTPP U1
TSTPP U2
Frequency
Event 1: Ideal response: 13 MW
Power (MW)
Frequency (Hz)
310
300
290
280
270
260
250
240
50.1
50.05
50
49.95
49.9
13:45
13:46
13:47
13:48
13:49
13:50
13:51
13:52
13:53
13:54
Time

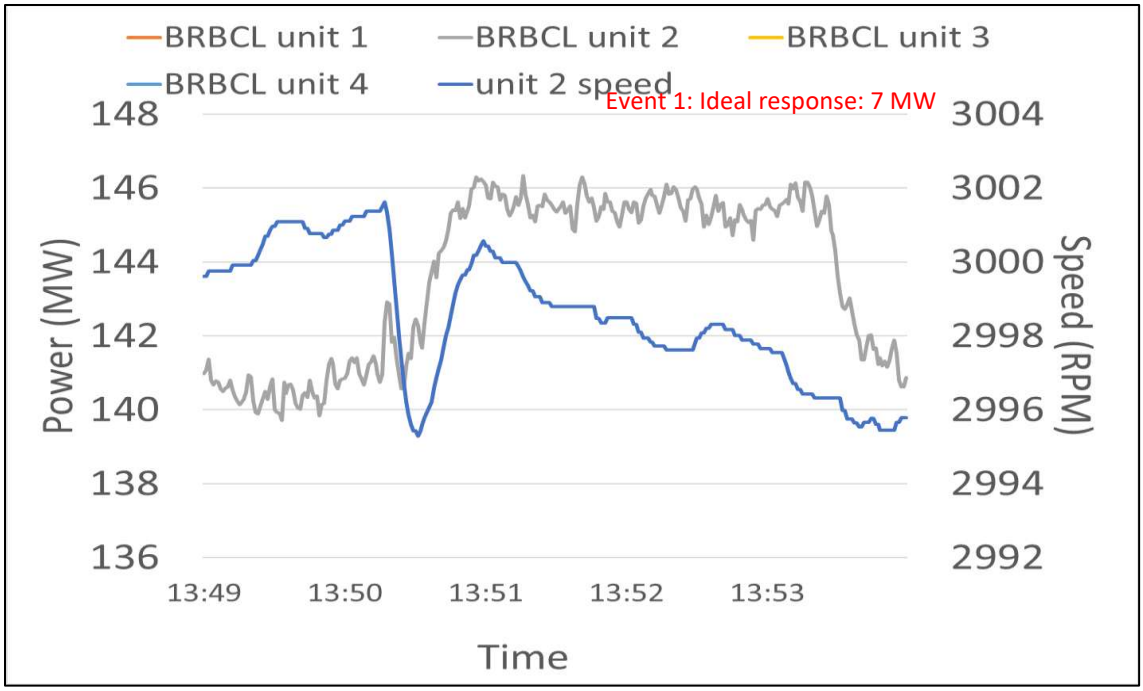

TSTPP U1
TSTPP U2
Frequency
Event 2: Ideal response: 14 -16 MW
Power (MW)
Frequency (Hz)
320
310
300
290
280
270
260
250
50.1
50
49.9
49.8
49.7
49.6
06:51
06:56
07:04
07:09
07:14
Time

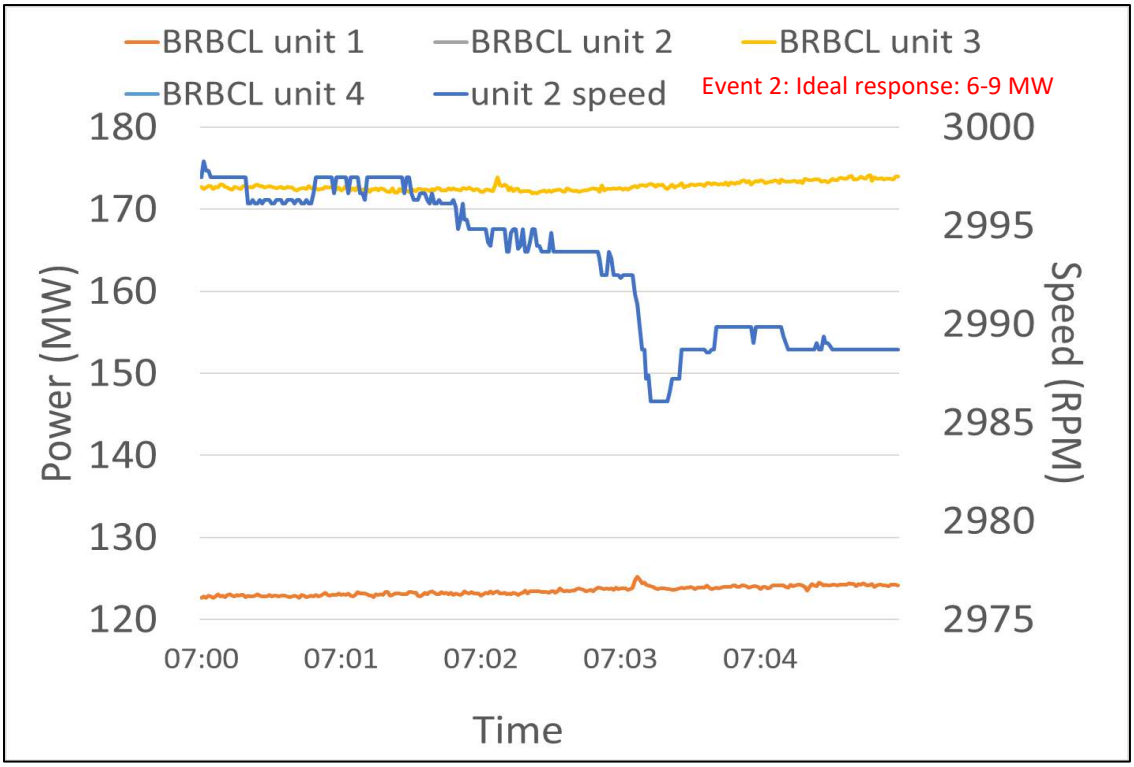

TSTPP U3
TSTPP U4
TSTPP U5
TSTPP U6
Unit 3 Speed
Event 1: Ideal response: 13 MW
Power (MW)
Speed (RPM)
295
290
285
280
275
270
265
260
3006
3004
3002
3000
2998
2996
2994
13:46
13:47
13:48
13:49
13:50
Time

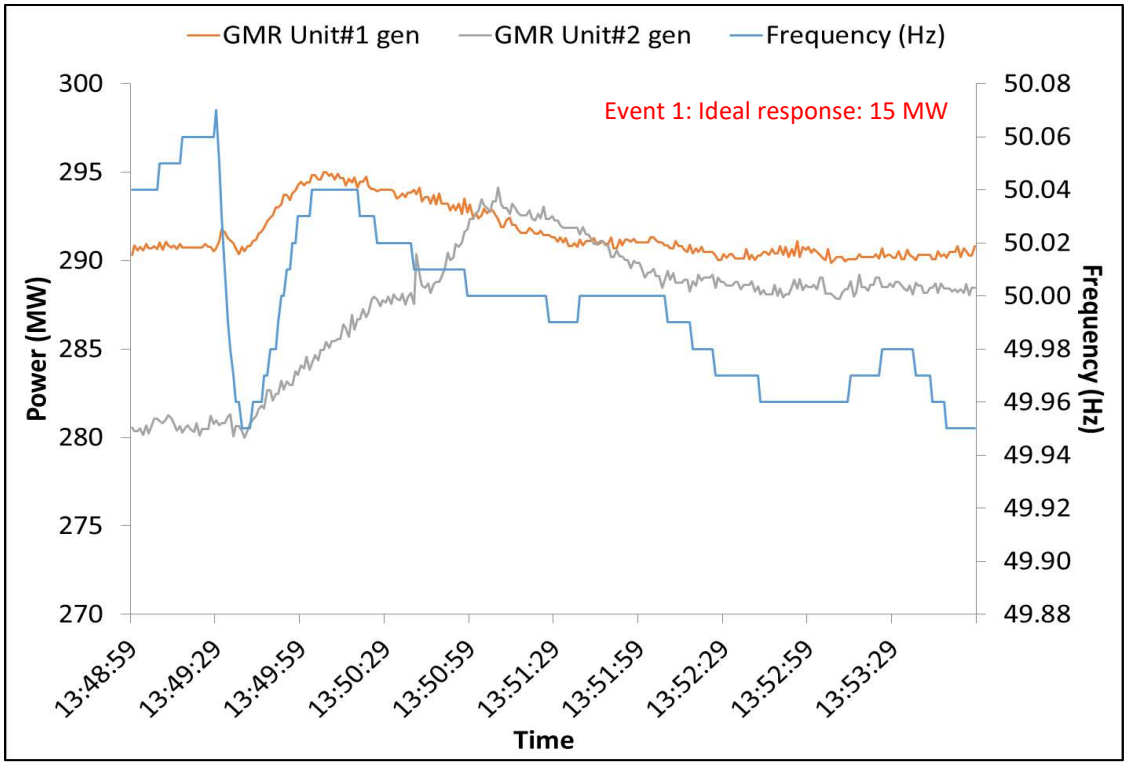

TSTPP U3
TSTPP U4
TSTPP U5
TSTPP U6
Unit 3 Speed
Event 2: Ideal response: 15 -16 MW
Power (MW)
Speed (RPM)
340
330
320
310
300
290
280
270
260
3000
2998
2996
2994
2992
2990
2988
2986
2984
06:58
06:59
07:00
07:01
07:02
Time

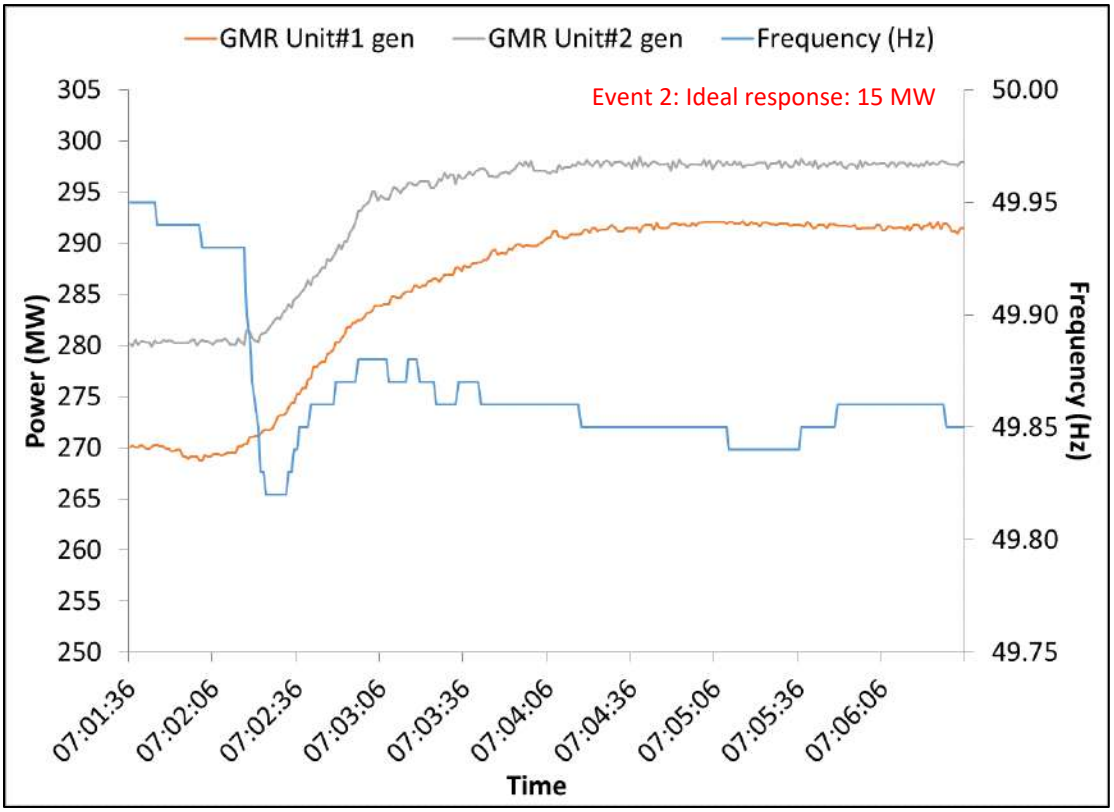

NPGC unit 1
Frequency
Event 1: Ideal response: 18 MW
385
380
375
370
365
360
Power (MW)
50.08
50.06
50.04
50.02
50.00
49.98
49.96
49.94
49.92
49.90
49.88
Frequency (Hz)
13:49 13:50 13:51 13:52 13:53 13:54
Time

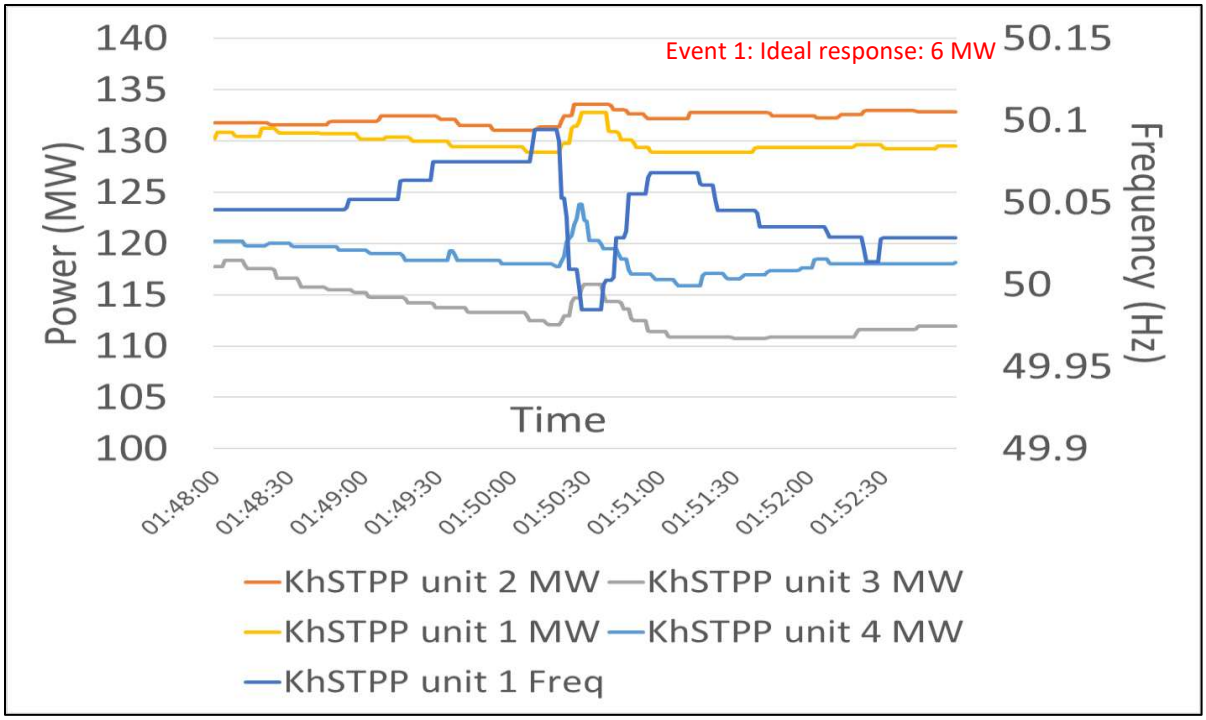

NPGC unit 1
Frequency
Event 2: Ideal response: 26 MW
658
656
654
652
650
648
646
644
642
640
Power (MW)
50.00
49.95
49.90
49.85
49.80
49.75
49.70
Frequency (Hz)
07:02 07:03 07:04 07:05 07:06 07:07
Time

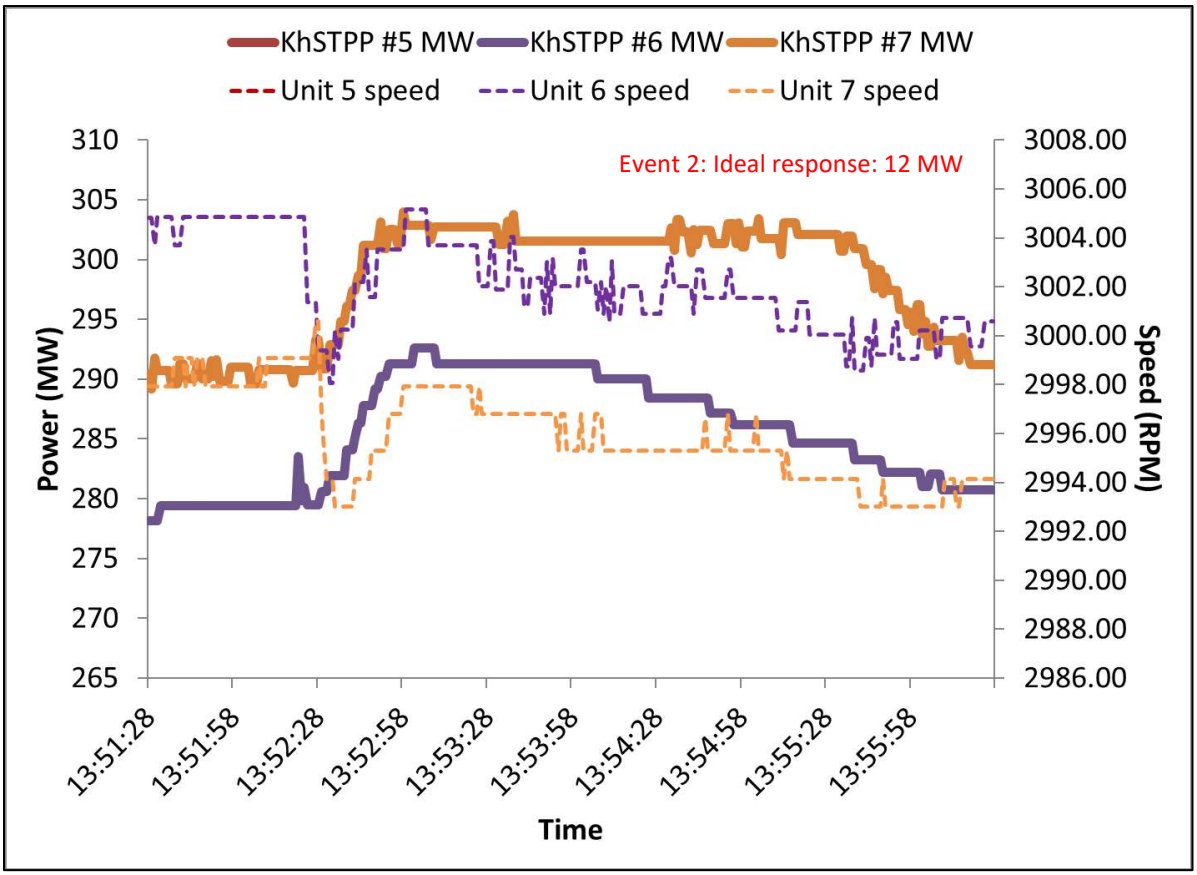

BRBCL unit 1
BRBCL unit 2
BRBCL unit 3
BRBCL unit 4
unit 2 speed
Event 1: Ideal response: 7 MW
148
146
144
142
140
138
136
Power (MW)
3004
3002
3000
2998
2996
2994
2992
Speed (RPM)
13:49
13:50
13:51
13:52
13:53
Time

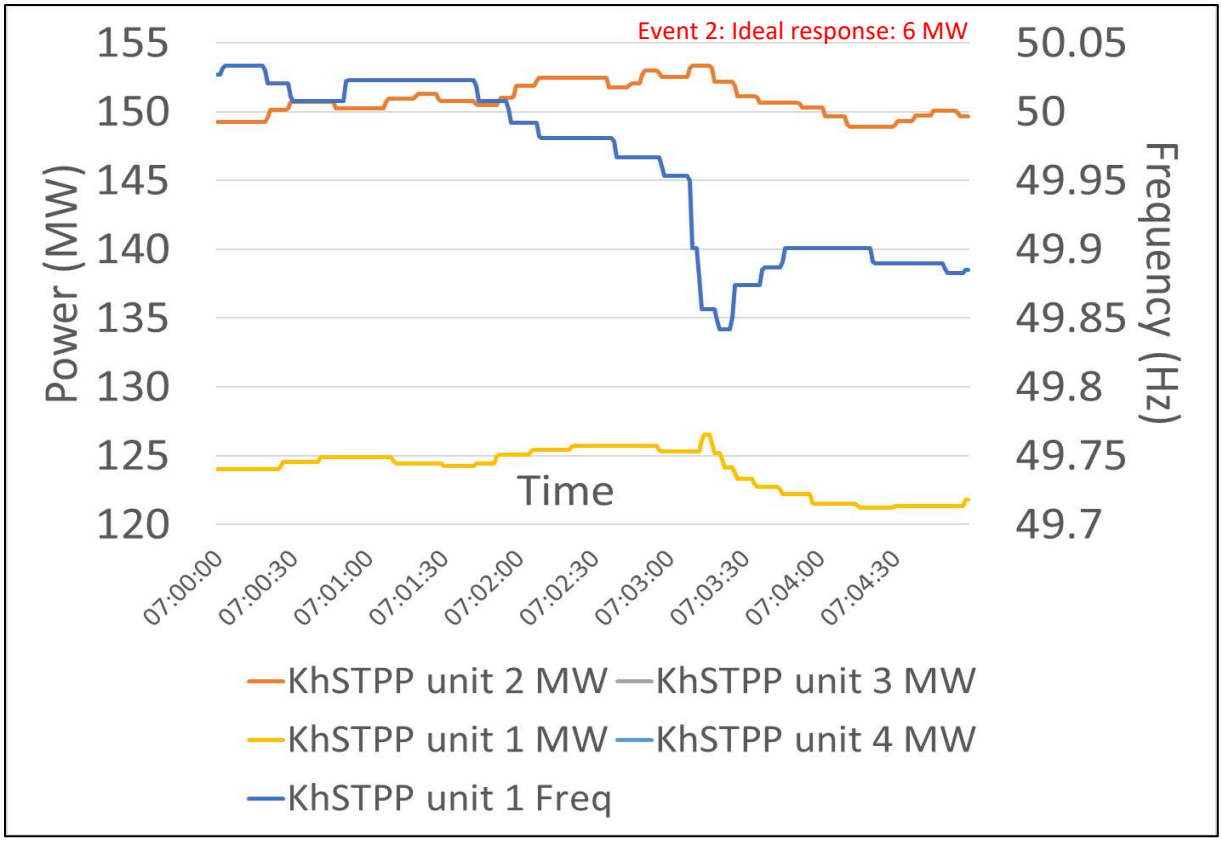

BRBCL unit 1
BRBCL unit 2
BRBCL unit 3
BRBCL unit 4
unit 2 speed
Event 2: Ideal response: 6-9 MW
180
170
160
150
140
130
120
Power (MW)
3000
2995
2990
2985
2980
2975
Speed (RPM)
07:00
07:01
07:02
07:03
07:04
Time


GMR Unit#1 gen
GMR Unit#2 gen
Frequency (Hz)
Event 1: Ideal response: 15 MW
Power (MW)
Frequency (Hz)
Time
300
295
290
285
280
275
270
50.08
50.06
50.04
50.02
50.00
49.98
49.96
49.94
49.92
49.90
49.88
13:48:59
13:49:29
13:49:59
13:50:29
13:50:59
13:51:29
13:51:59
13:52:29
13:52:59
13:53:29

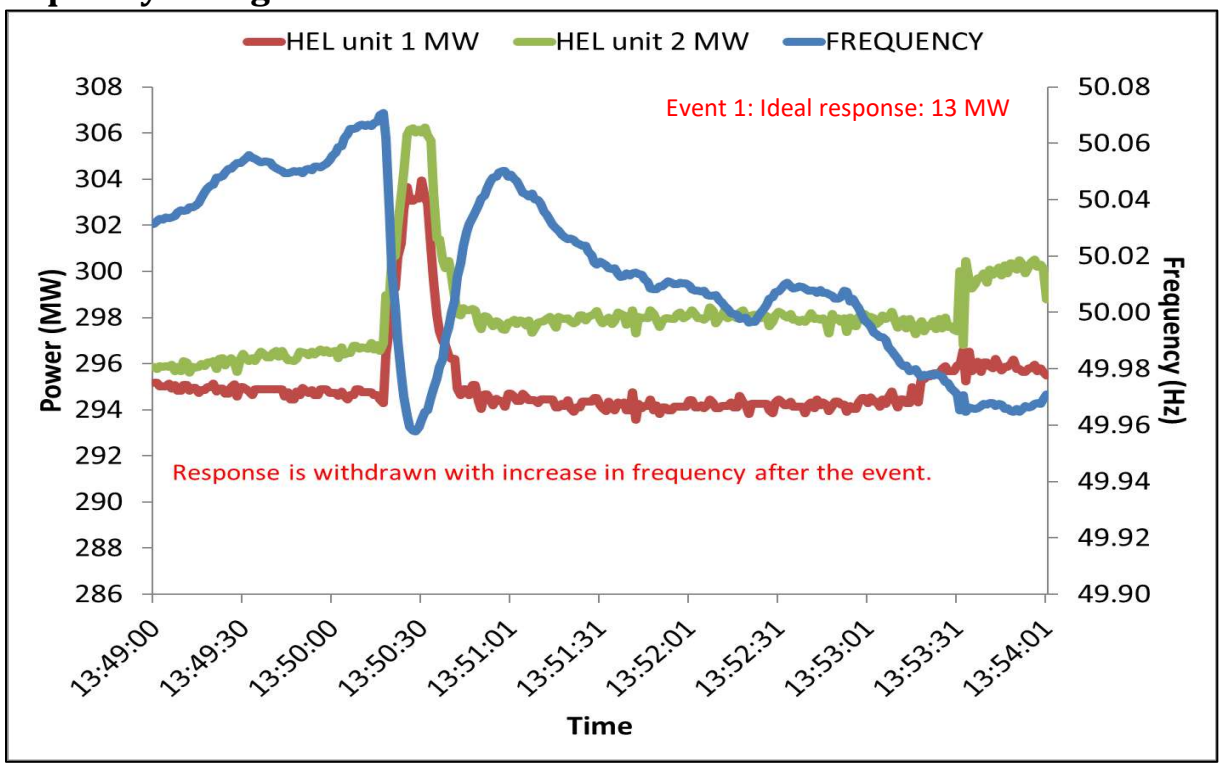

GMR Unit#1 gen
GMR Unit#2 gen
Frequency (Hz)
Event 2: Ideal response: 15 MW
Power (MW)
Frequency (Hz)
Time
305
300
295
290
285
280
275
270
265
260
255
250
50.00
49.95
49.90
49.85
49.80
49.75
07:01:36
07:02:06
07:02:36
07:03:06
07:03:36
07:04:06
07:04:36
07:05:06
07:05:36
07:06:06

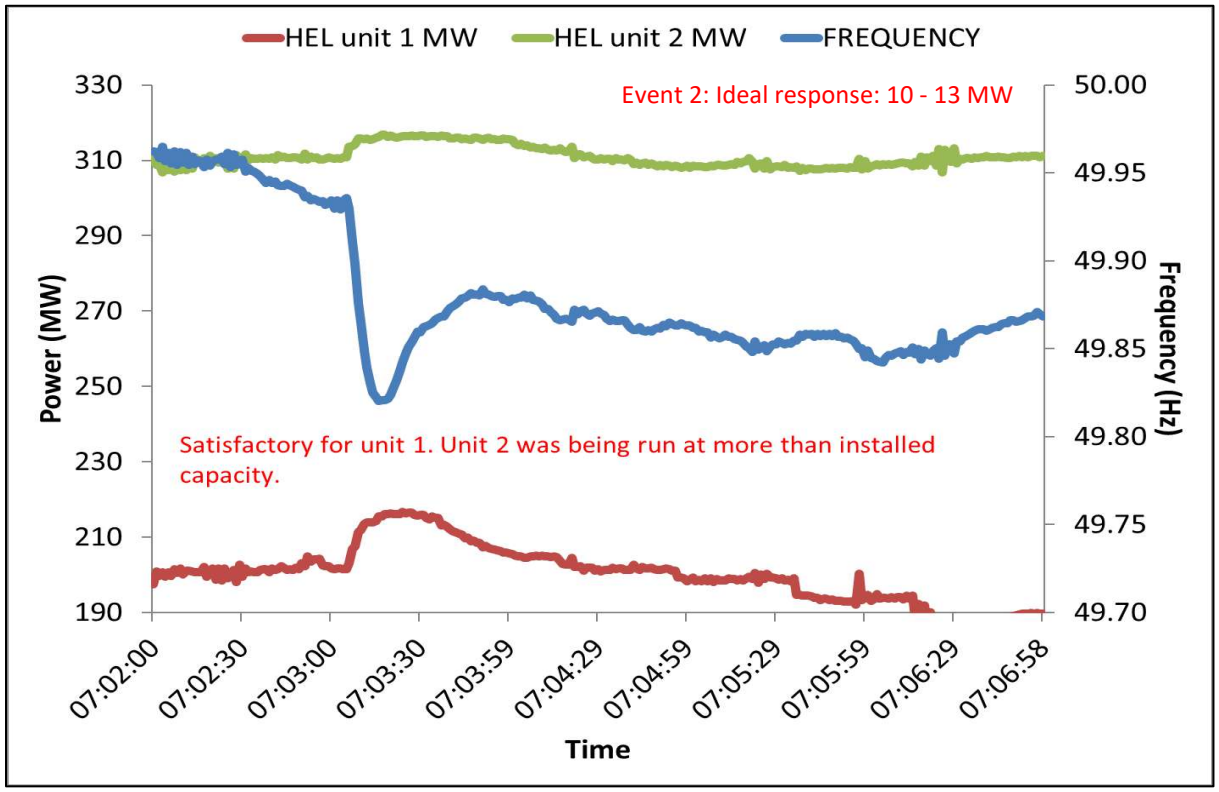

Event 1: Ideal response: 6 MW
Power (MW)
Frequency (Hz)
Time
140
135
130
125
120
115
110
105
100
50.15
50.1
50.05
50
49.95
49.9
01:48:00
01:48:30
01:49:00
01:49:30
01:50:00
01:50:30
01:51:00
01:51:30
01:52:00
01:52:30
KhSTPP unit 2 MW
KhSTPP unit 3 MW
KhSTPP unit 1 MW
KhSTPP unit 4 MW
KhSTPP unit 1 Freq

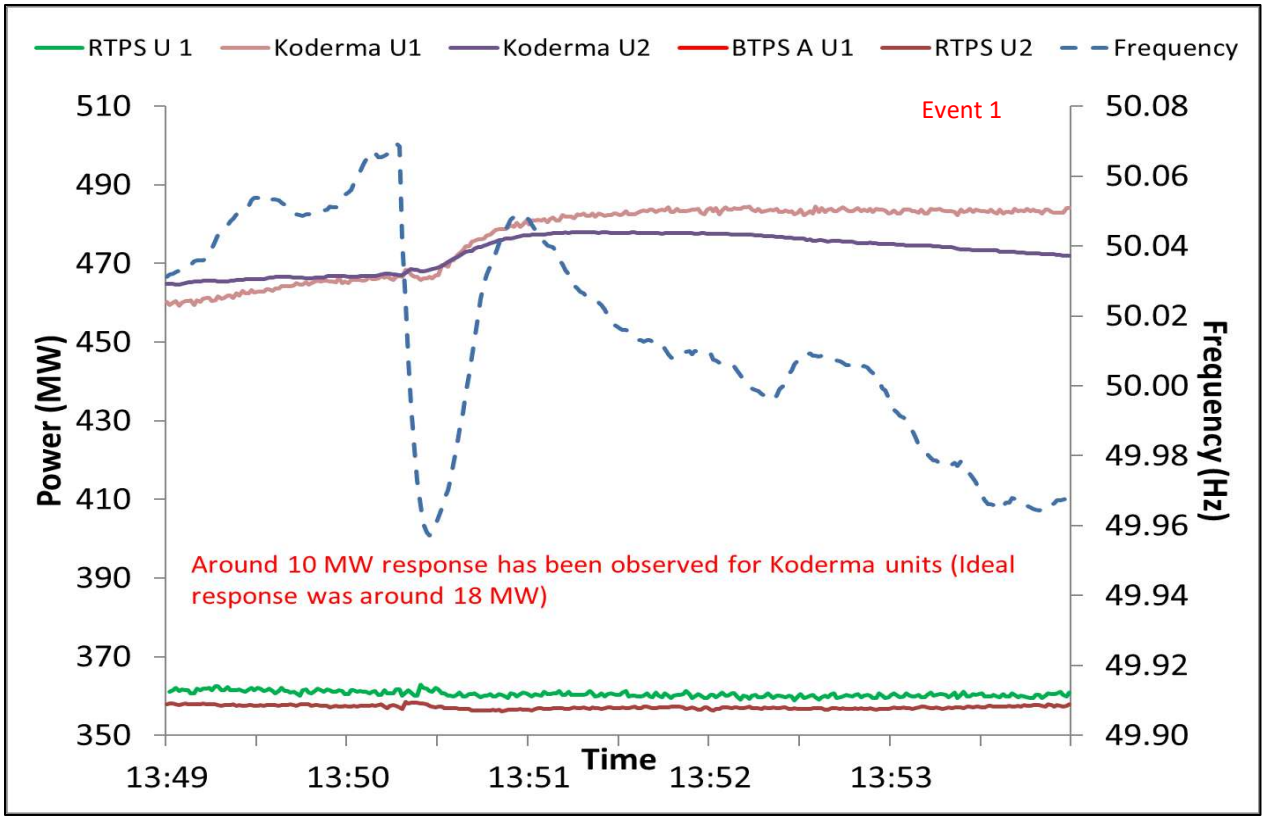

KhSTPP #5 MW
KhSTPP #6 MW
KhSTPP #7 MW
Unit 5 speed
Unit 6 speed
Unit 7 speed
Event 2: Ideal response: 12 MW
Power (MW)
Speed (RPM)
Time
310
305
300
295
290
285
280
275
270
265
3008.00
3006.00
3004.00
3002.00
3000.00
2998.00
2996.00
2994.00
2992.00
2990.00
2988.00
2986.00
13:51:28
13:51:58
13:52:28
13:52:58
13:53:28
13:53:58
13:54:28
13:54:58
13:55:28
13:55:58

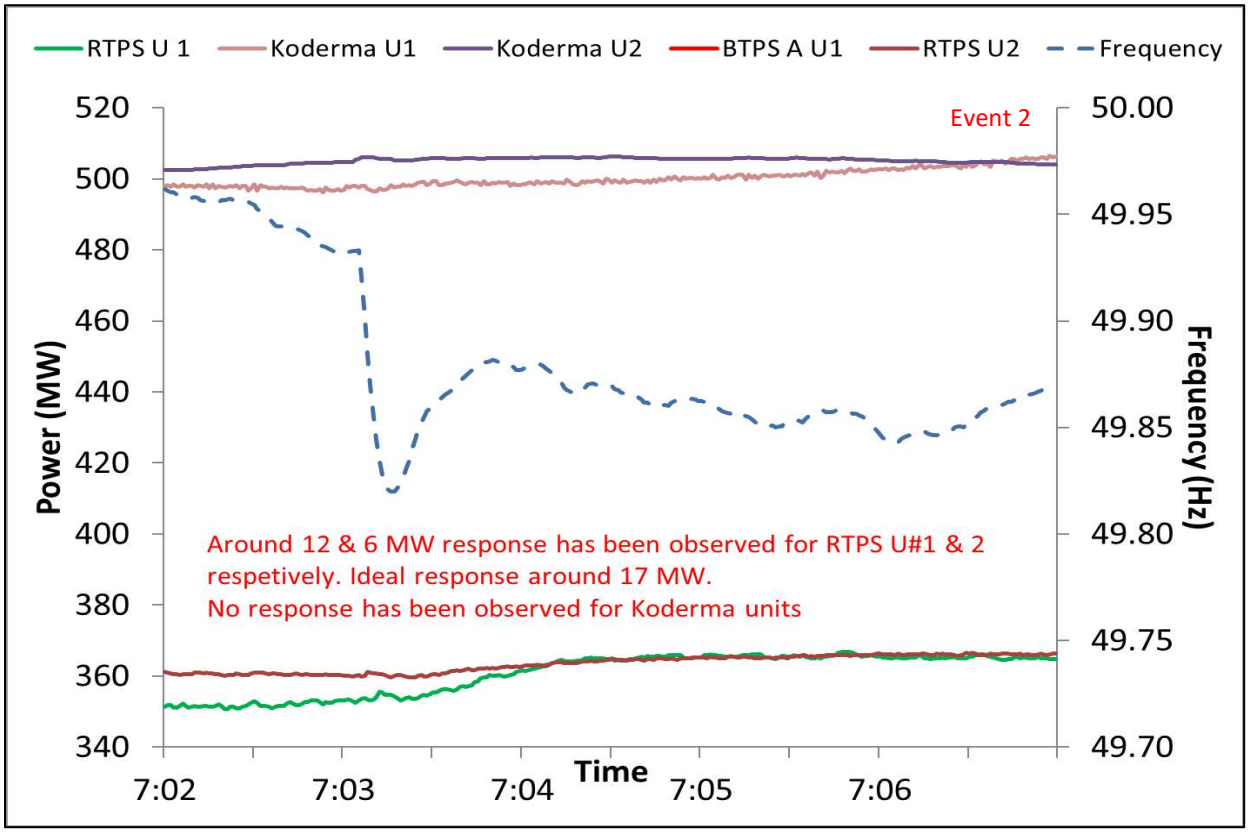

Event 2: Ideal response: 6 MW
155
150
145
140
135
130
125
120
Power (MW)
50.05
50
49.95
49.9
49.85
49.8
49.75
49.7
Frequency (Hz)
Time
07:00:00
07:00:30
07:01:00
07:01:30
07:02:00
07:02:30
07:03:00
07:03:30
07:04:00
07:04:30
KhSTPP unit 2 MW
KhSTPP unit 3 MW
KhSTPP unit 1 MW
KhSTPP unit 4 MW
KhSTPP unit 1 Freq

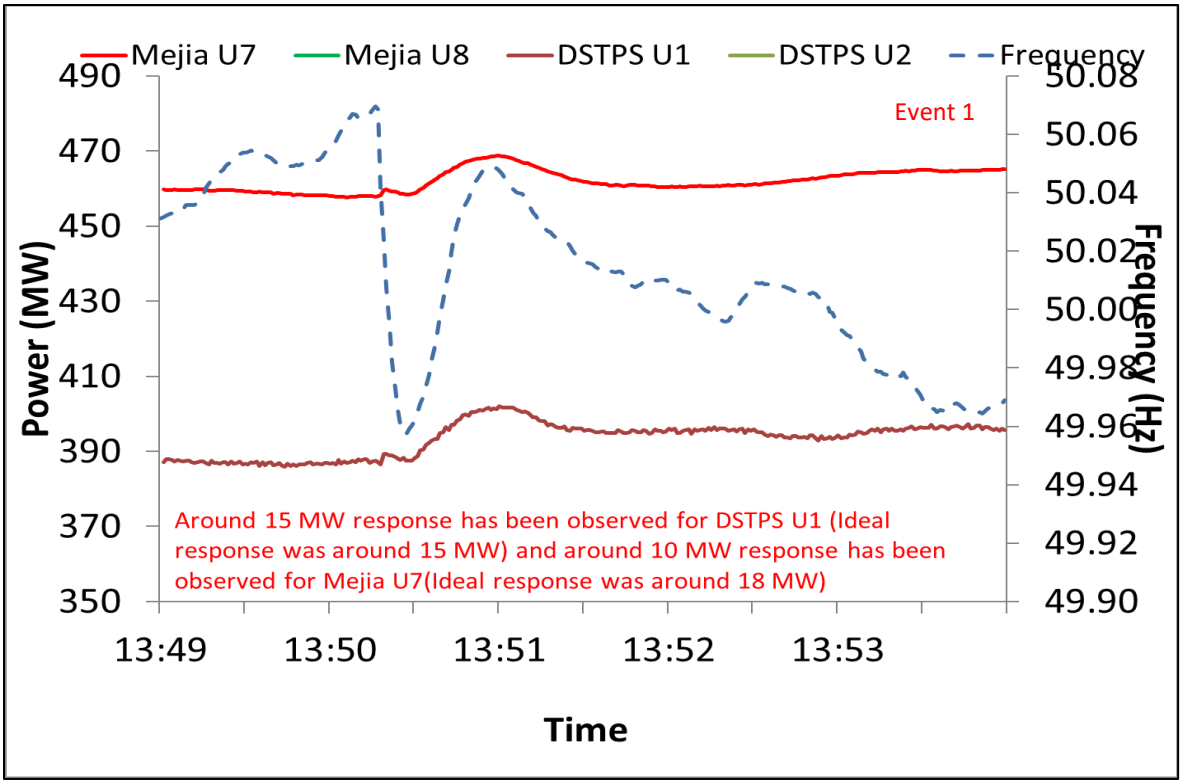
Annexure 2: Variation of generation of state generating stations during frequency change

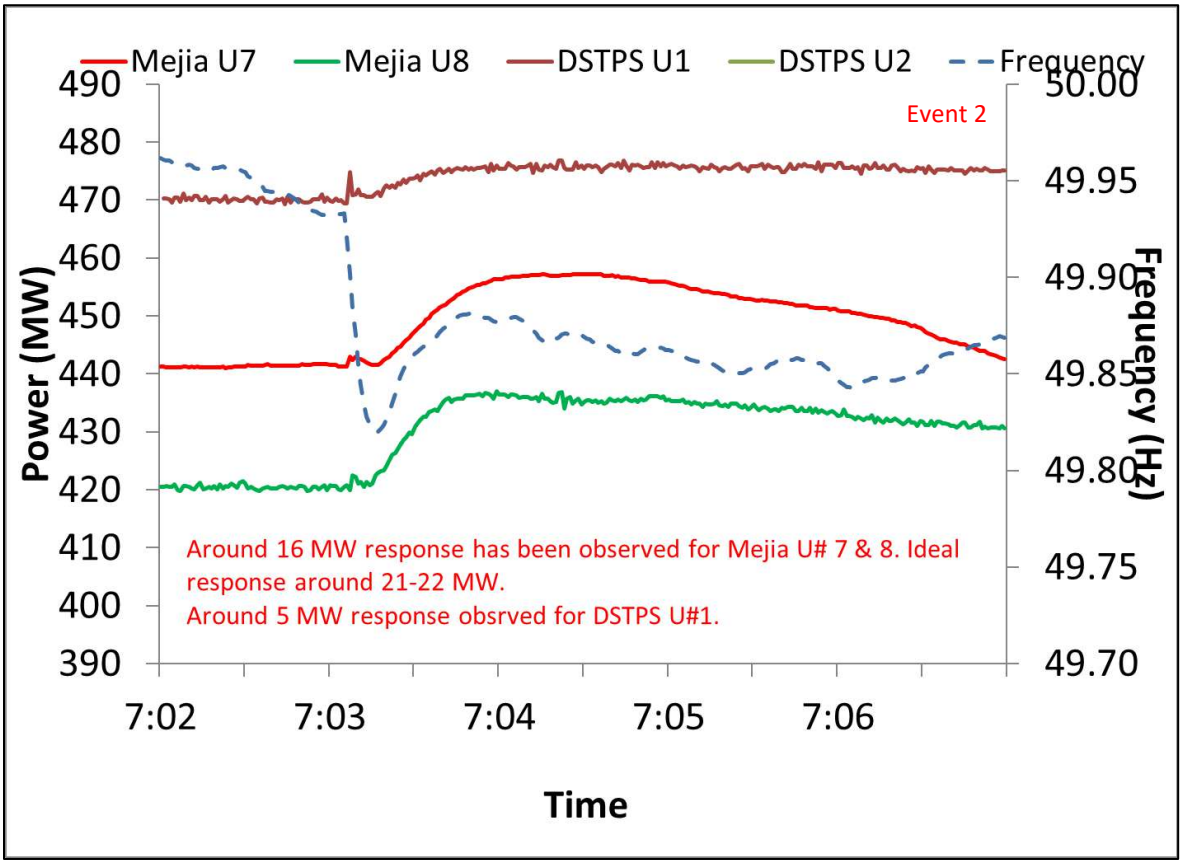


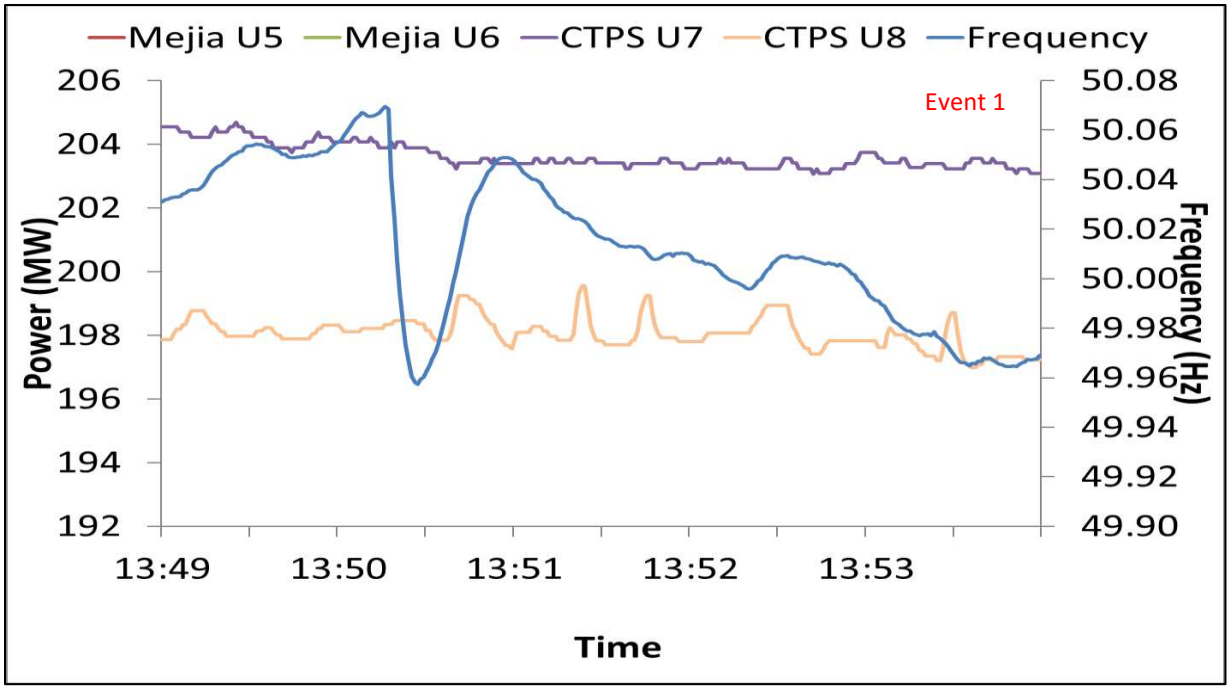


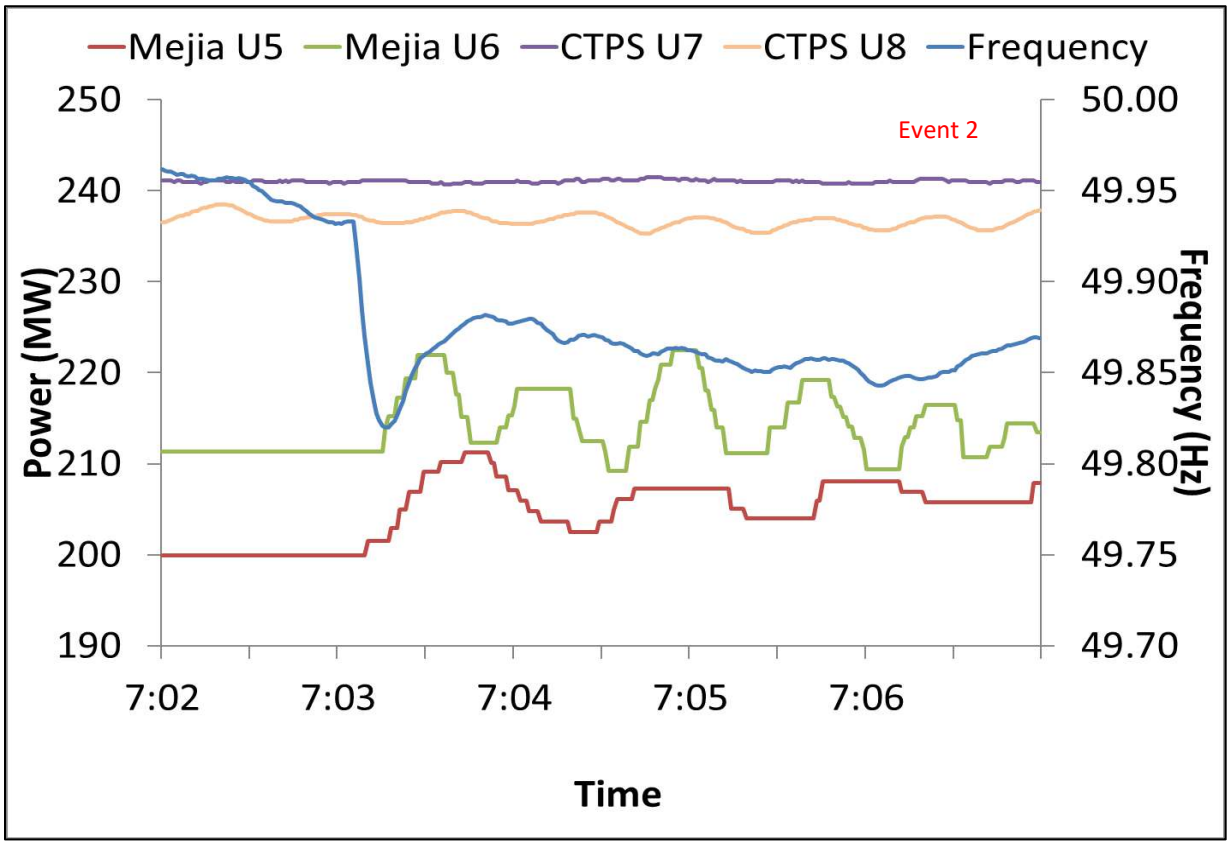

RTPS U 1
Koderma U1
Koderma U2
BTPS A U1
RTPS U2
Frequency
Event 1
Power (MW)
Frequency (Hz)
Time
510
490
470
450
430
410
390
370
350
50.08
50.06
50.04
50.02
50.00
49.98
49.96
49.94
49.92
49.90
13:49
13:50
13:51
13:52
13:53
Around 10 MW response has been observed for Koderma units (Ideal response was around 18 MW)

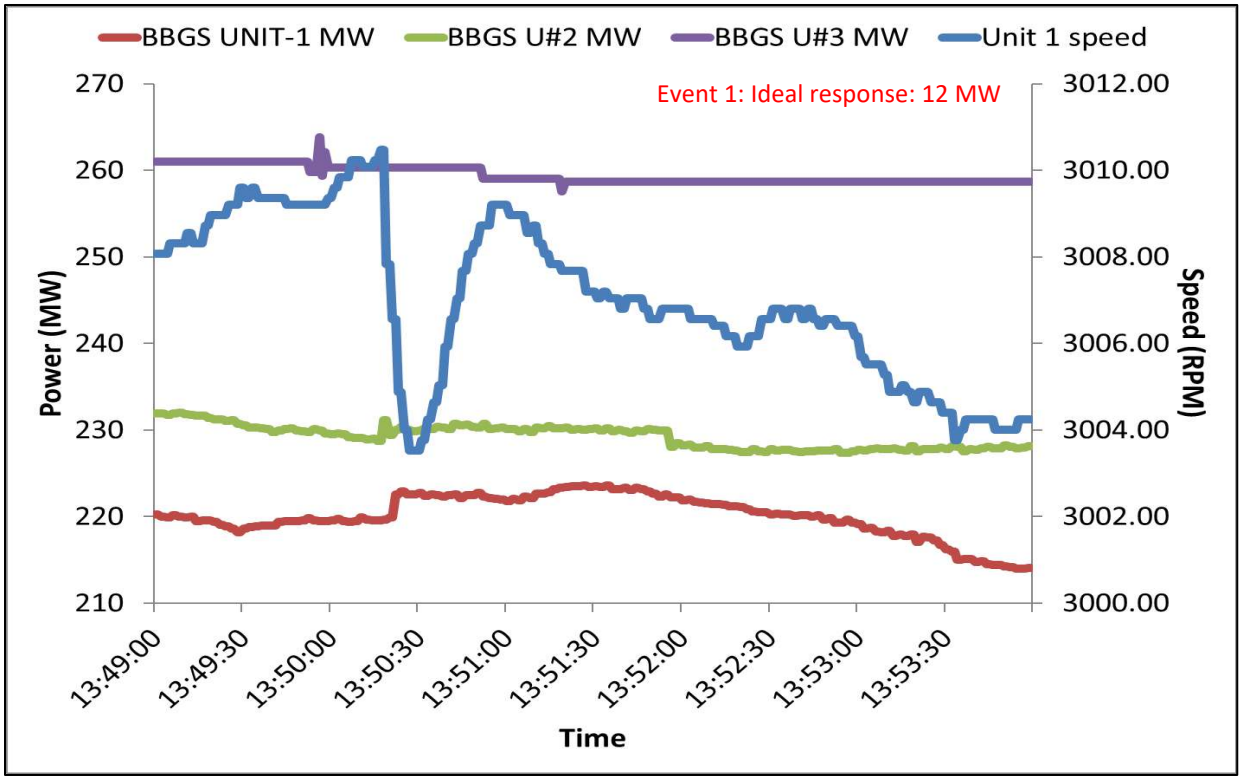

RTPS U 1
Koderma U1
Koderma U2
BTPS A U1
RTPS U2
Frequency
Event 2
Power (MW)
Frequency (Hz)
Time
520
500
480
460
440
420
400
380
360
340
50.00
49.95
49.90
49.85
49.80
49.75
49.70
7:02
7:03
7:04
7:05
7:06
Around 12 & 6 MW response has been observed for RTPS U#1 & 2 respetively. Ideal response around 17 MW.
No response has been observed for Koderma units

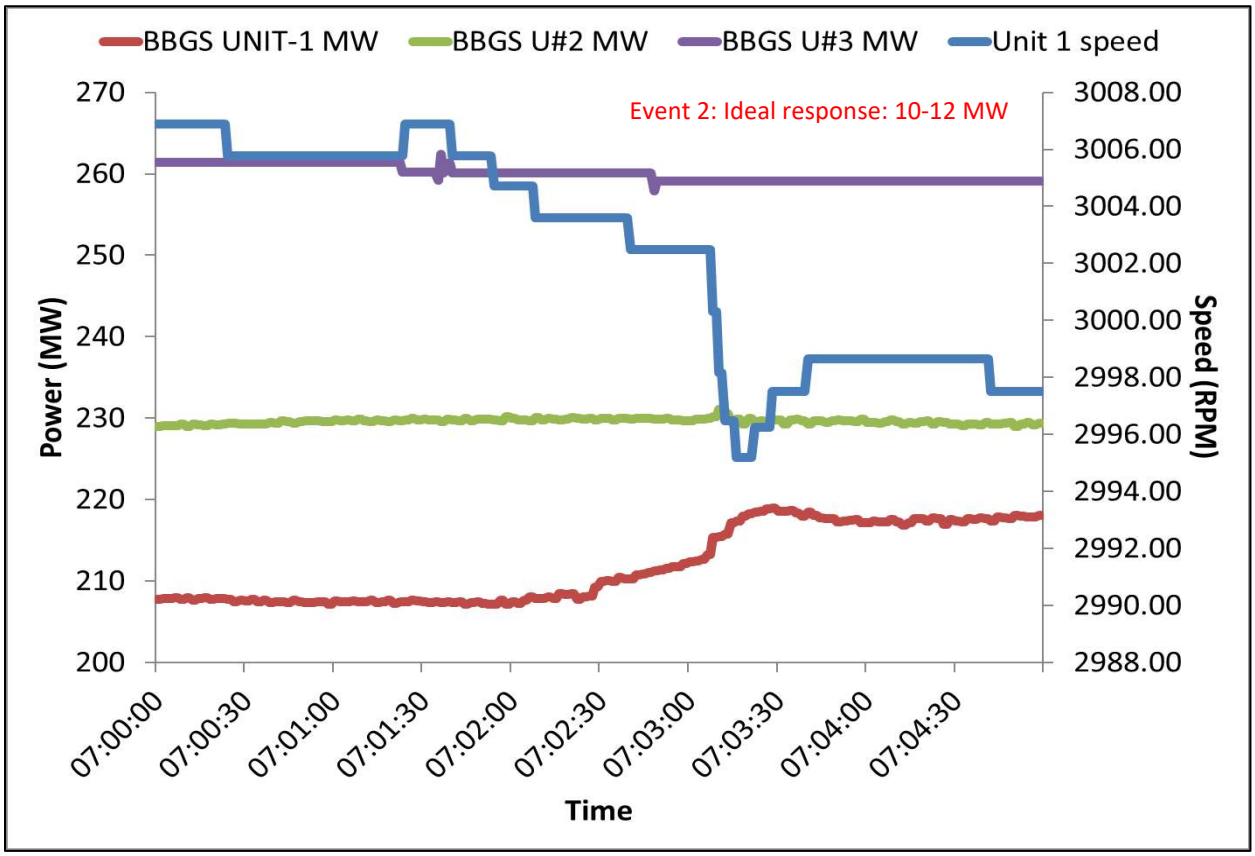

Mejia U7
Mejia U8
DSTPS U1
DSTPS U2
Frequency
Event 1
Power (MW)
Frequency (Hz)
490
470
450
430
410
390
370
350
50.08
50.06
50.04
50.02
50.00
49.98
49.96
49.94
49.92
49.90
13:49
13:50
13:51
13:52
13:53
Time
Around 15 MW response has been observed for DSTPS U1 (Ideal response was around 15 MW) and around 10 MW response has been observed for Mejia U7(Ideal response was around 18 MW)

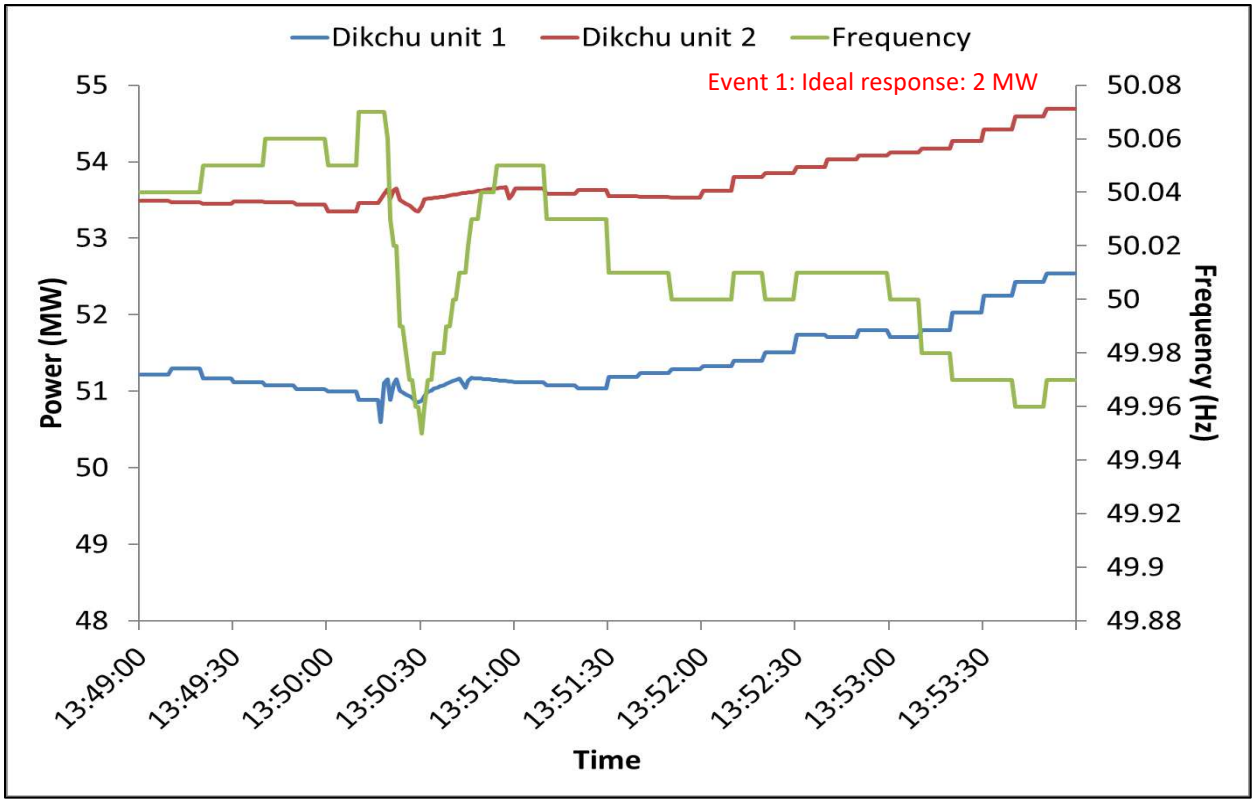

Mejia U7
Mejia U8
DSTPS U1
DSTPS U2
Frequency
Event 2
Power (MW)
Frequency (Hz)
490
480
470
460
450
440
430
420
410
400
390
50.00
49.95
49.90
49.85
49.80
49.75
49.70
7:02
7:03
7:04
7:05
7:06
Time
Around 16 MW response has been observed for Mejia U# 7 & 8. Ideal response around 21-22 MW.
Around 5 MW response obsrved for DSTPS U#1.

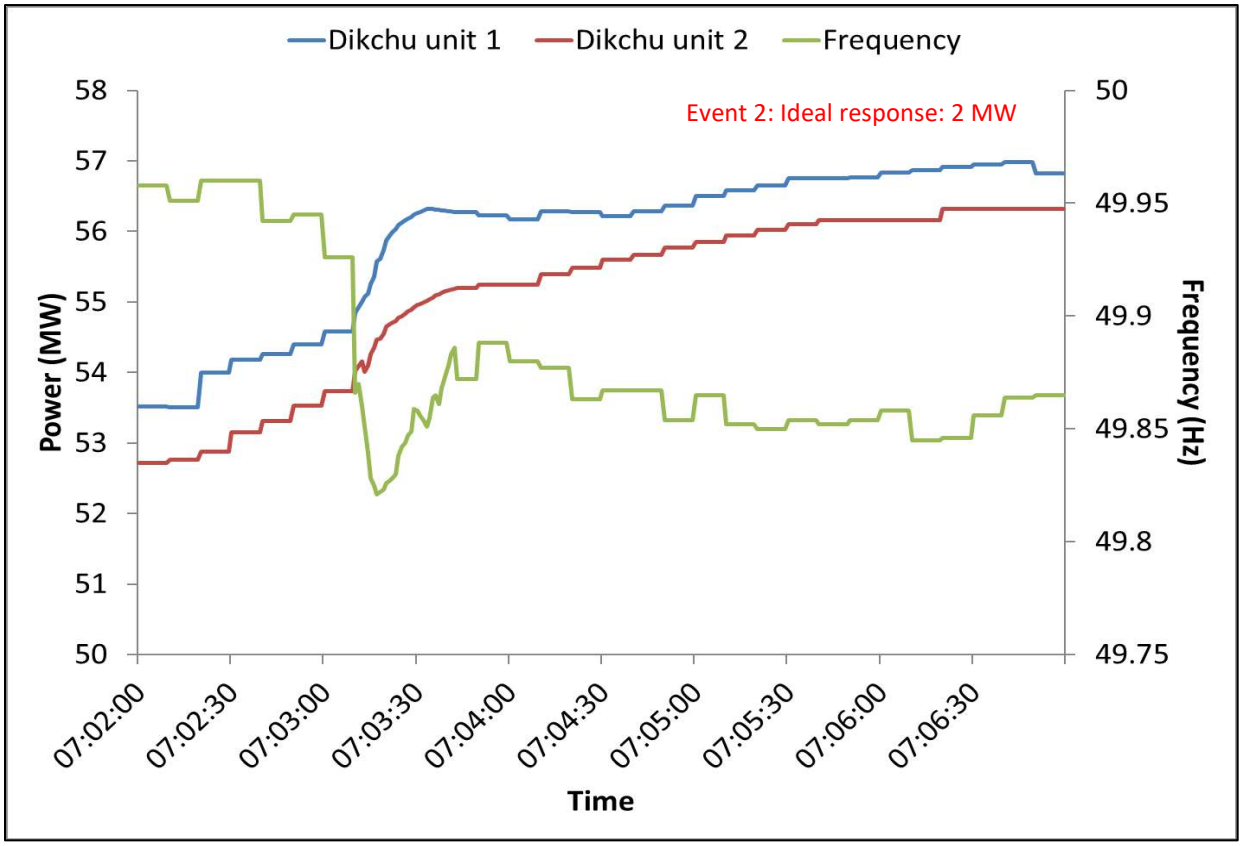

Mejia U5
Mejia U6
CTPS U7
CTPS U8
Frequency
Event 1
206
204
202
200
198
196
194
192
50.08
50.06
50.04
50.02
50.00
49.98
49.96
49.94
49.92
49.90
Power (MW)
Frequency (Hz)
13:49
13:50
13:51
13:52
13:53
Time


Mejia U5
Mejia U6
CTPS U7
CTPS U8
Frequency
Event 2
250
240
230
220
210
200
190
50.00
49.95
49.90
49.85
49.80
49.75
49.70
Power (MW)
Frequency (Hz)
7:02
7:03
7:04
7:05
7:06
Time


BBGS UNIT-1 MW
BBGS U#2 MW
BBGS U#3 MW
Unit 1 speed
Event 1: Ideal response: 12 MW
Power (MW)
Speed (RPM)
270
260
250
240
230
220
210
3012.00
3010.00
3008.00
3006.00
3004.00
3002.00
3000.00
13:49:00
13:49:30
13:50:00
13:50:30
13:51:00
13:51:30
13:52:00
13:52:30
13:53:00
13:53:30
Time


BBGS UNIT-1 MW
BBGS U#2 MW
BBGS U#3 MW
Unit 1 speed
Event 2: Ideal response: 10-12 MW
Power (MW)
Speed (RPM)
270
260
250
240
230
220
210
200
3008.00
3006.00
3004.00
3002.00
3000.00
2998.00
2996.00
2994.00
2992.00
2990.00
2988.00
07:00:00
07:00:30
07:01:00
07:01:30
07:02:00
07:02:30
07:03:00
07:03:30
07:04:00
07:04:30
Time


Dikchu unit 1
Dikchu unit 2
Frequency
Event 1: Ideal response: 2 MW
Power (MW)
Frequency (Hz)
Time
55
54
53
52
51
50
49
48
50.08
50.06
50.04
50.02
50
49.98
49.96
49.94
49.92
49.9
49.88
13:49:00
13:49:30
13:50:00
13:50:30
13:51:00
13:51:30
13:52:00
13:52:30
13:53:00
13:53:30


Dikchu unit 1
Dikchu unit 2
Frequency
Event 2: Ideal response: 2 MW
Power (MW)
Frequency (Hz)
Time
58
57
56
55
54
53
52
51
50
50
49.95
49.9
49.85
49.8
49.75
07:02:00
07:02:30
07:03:00
07:03:30
07:04:00
07:04:30
07:05:00
07:05:30
07:06:00
07:06:30

Annexure 3: FRC shared by DVC SLDC

Event 1:

S No	Pariculars	Dimension	DVC Interchange
1	Actual Net Interchange before the Event (13:50:20)	MW	-1573
2	Actual Net Interchange after the Event (13:51:30)	MW	-1640
3	Change in Net Interchange (2 - 1)	MW	-67.0
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	0.0
5	Control Area Response (3 - 4)	MW	-67.0
6	Frequency before the Event	HZ	50.07
7	Frequency after the Event	HZ	50.03
8a	Change in Frequency (7 - 6)	HZ	-0.043
8	Effective change in Frequency considering RGMO *	HZ	-0.043
9	Frequency Response Characteristic (5 / 8)	MW/HZ	1569
10	Net System Demand met before the Event	MW	2420
11	Internal Generation before the Event (10 - 1)	MW	3993
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	96.8
13	Ideal generator response assuming 5% droop…….40% per Hz (40% of Row 11)	MW/Hz	1597.1
14	Composite ideal response (12 + 13)	MW/Hz	1693.9
15	Percentage of ideal response {(9/14)x100}	%	92.6%

Event 2:

S No	Pariculars	Dimension	DVC Interchange
1	Actual Net Interchange before the Event (07:03:10)	MW	-1817
2	Actual Net Interchange after the Event (07:03:50)	MW	-1859
3	Change in Net Interchange (2 - 1)	MW	-42.3
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	0.0
5	Control Area Response (3 - 4)	MW	-42.3
6	Frequency before the Event	HZ	49.93
7	Frequency after the Event	HZ	49.86
8a	Change in Frequency (7 - 6)	HZ	-0.076
8	Effective change in Frequency considering RGMO *	HZ	-0.076
9	Frequency Response Characteristic (5 / 8)	MW/HZ	555
10	Net System Demand met before the Event	MW	2730
11	Internal Generation before the Event (10 - 1)	MW	4547
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	109.2
13	Ideal generator response assuming 5% droop…….40% per Hz (40% of Row 11)	MW/Hz	1818.7
14	Composite ideal response (12 + 13)	MW/Hz	1927.9
15	Percentage of ideal response {(9/14)x100}	%	28.8%

Annexure 4: FRC shared by GRIDCO SLDC

Event 1:

Frequency Response Characteristic Calculation in GRIDCO control area										
On 22nd July 2020 at 12:49:18.800 hrs, 1402 MW solar generation loss at Bhadla in NR										
S No	Paricular s	Dimension	Balimela	Burla	Rengali	Indravati	Upper Kolab	IBTPS	IBTPS Stage 2	GRIDCO Interchange
1	Actual Net Interchange before the Event (13:51:10)	MW	-49	-47	-199	0	-40	-283	-624	505
2	Actual Net Interchange after the Event (13:54:00)	MW	-53	-47	-199	0	-40	-280	-624	531
3	Change in Net Interchange (2 - 1)	MW	-3.2	0.1	0.4	0.0	-0.1	3.2	0.0	25.5
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Control Area Response (3 - 4)	MW	-3.2	0.1	0.4	0.0	-0.1	3.2	0.0	25.5
6	Frequency before the Event	HZ	49.99	49.99	49.99	49.99	49.99	49.99	49.99	49.99
7	Frequency after the Event	HZ	49.94	49.94	49.94	49.94	49.94	49.94	49.94	49.94
8a	Change in Frequency (7 - 6)	HZ	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.050
8	Effective change in Frequency considering RGMO *	HZ	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.050
9	Frequency Response Characteristic (5 / 8)	MW/HZ	64	-2	-9	0	2	-64	0	-509
10	Net System Demand met before the Event	MW	0	0	0	0	0	0	0	3257
11	Internal Generation before the Event (10 - 1)	MW	49	47	199	0	40	283	624	2752
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	0.0	0.0	0.0	0.0	0.0	0.0	0.0	130.3
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	19.7	18.8	79.7	0.0	16.1	113.2	249.5	1100.7
14	Composite ideal response (12 + 13)	MW/Hz	19.7	18.8	79.7	0.0	16.1	113.2	249.5	1231.0
15	Percentage of ideal response {(9/14)x100}	%	322.1%	-8.5%	-11.0%	0.0%	13.7%	-56.4%	0.2%	-41.4%

As per ERLDC SCADA data, FRC of GRIDCO was 144% of ideal response. GRIDCO may review FRC calculation process.

Event 2:

Frequency Response Characteristic Calculation in GRIDCO control area										
On 13th August 2020 at 07:03:05:480 hrs, 1200 MW wind generation loss occurred at Jhakri, Karcham and Rampur in NR. It led to the frequency drop from 49.93 Hz to 49.82 Hz at nadir point										
S No	Paricular s	Dimension	Balimela	Burla	Rengali	Indravati	Upper Kolab	IBTPS	IBTPS Stage 2	GRIDCO Interchange
1	Actual Net Interchange before the Event (07:02:50)	MW	-193	-61	-155	0	-145	-307	-592	549
2	Actual Net Interchange after the Event (07:03:30)	MW	-201	-61	-154	0	-145	-304	-589	566
3	Change in Net Interchange (2 - 1)	MW	-8.0	0.4	0.3	0.0	0.2	3.1	2.9	16.8
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Control Area Response (3 - 4)	MW	-8.0	0.4	0.3	0.0	0.2	3.1	2.9	16.8
6	Frequency before the Event	HZ	49.99	49.99	49.99	49.99	49.99	49.99	49.99	49.99
7	Frequency after the Event	HZ	49.86	49.86	49.86	49.86	49.86	49.86	49.86	49.86
8a	Change in Frequency (7 - 6)	HZ	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.130
8	Effective change in Frequency considering RGMO *	HZ	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.130
9	Frequency Response Characteristic (5 / 8)	MW/HZ	62	-3	-3	0	-2	-24	-22	-130
10	Net System Demand met before the Event	MW	0	0	0	0	0	0	0	3536
11	Internal Generation before the Event (10 - 1)	MW	193	61	155	0	145	307	592	2987
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	0.0	0.0	0.0	0.0	0.0	0.0	0.0	141.4
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	77.1	24.4	61.8	0.0	58.1	122.8	236.7	1194.8
14	Composite ideal response (12 + 13)	MW/Hz	77.1	24.4	61.8	0.0	58.1	122.8	236.7	1336.2
15	Percentage of ideal response {(9/14)x100}	%	80.2%	-11.3%	-4.4%	0.0%	-3.0%	-19.2%	-9.3%	-9.7%

As per ERLDC SCADA data, FRC of GRIDCO was 32% of ideal response. GRIDCO may review FRC calculation process.

ANNEXURE D1

ANTICIPATED POWER SUPPLY POSITION FOR THE MONTH OF OCT-20

SL.NO		PARTICULARS	PEAK DEMAND IN MW	ENERGY IN MU
1		BIHAR		
	i)	NET MAX DEMAND	5595	3125
	ii)	NET POWER AVAILABILITY - Own	591	272
	iii)	Central Sector+Bi-Lateral	4481	2533
	iv)	SURPLUS(+)/DEFICIT(-)	-523	-319
2		JHARKHAND		
	i)	NET MAXIMUM DEMAND	1425	850
	ii)	NET POWER AVAILABILITY - Own Source	386	233
	iii)	Central Sector+Bi-Lateral+IPP	1000	635
	iv)	SURPLUS(+)/DEFICIT(-)	-39	18
3		DVC		
	i)	NET MAXIMUM DEMAND	2945	1920
	ii)	NET POWER AVAILABILITY - Own Source	5522	3505
	iii)	Central Sector+MPL	528	331
	iv)	Bi- lateral export by DVC	1498	1115
	v)	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	1607	800
4		ODISHA		
	i)	NET MAXIMUM DEMAND	5410	3315
	ii)	NET POWER AVAILABILITY - Own Source	3742	2451
	iii)	Central Sector	2096	1347
	iv)	SURPLUS(+)/DEFICIT(-)	428	483
5		WEST BENGAL		
5.1		WBSEDCL		
	i)	NET MAXIMUM DEMAND	7335	3480
	ii)	IPCL DEMAND	83	62
	iii)	TOTAL WBSEDCL's Energy Requirement (incl.B'Desh+Sikkim+IPCL)	7628	3698
	iv)	NET POWER AVAILABILITY - Own Source	4655	2811
	v)	Contribution from DPL	465	334
	vi)	Central Sector+Bi-lateral+IPP&CPP+TLDP	2846	1822
	vii)	EXPORT (TO B'DESH & SIKKIM)	210	156
	viii)	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	338	1268
5.2		CESC		
	i)	NET MAXIMUM DEMAND	2050	970
	ii)	NET POWER AVAILABILITY - Own Source	750	523
	iii)	FROM OTHER SOURCE (INCL. IPP/CPP-29-30 MU/M)	760	118
	iv)	IMPORT FROM HEL	540	329
	v)	TOTAL AVAILABILITY OF CESC	2050	970
	vi)	SURPLUS(+)/DEFICIT(-)	0	0
6		WEST BENGAL (WBSEDCL+DPL+CESC) (excluding DVC's supply to WBSEDCL's command area)		
	i)	NET MAXIMUM DEMAND	9468	4512
	ii)	NET POWER AVAILABILITY - Own Source	5870	3668
	iii)	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	4146	2269
	iv)	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXP.	548	1424
	v)	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXP.	338	1268
7		SIKKIM		
	i)	NET MAXIMUM DEMAND	100	50
	ii)	NET POWER AVAILABILITY - Own Source	8	3
		- Central Sector	185	118
	iii)	SURPLUS(+)/DEFICIT(-)	93	71
8		EASTERN REGION		
	i)	NET MAXIMUM DEMAND	25037	13772
	ii)	BILATERAL EXPORT BY DVC	1587	1115
	iii)	EXPORT BY WBSEDCL	210	156
	iv)	NET TOTAL POWER AVAILABILITY OF ER (INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)	28536	17363
	v)	ENERGY SURPLUS(+)/DEFICIT(-) OF ER AFTER EXPORT (v = iv - i -ii - iii)	1703	2321