भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
उत्तर क्षेत्रीय विद्युत समिति
Northern Regional Power Committee

संख्या: उ.क्षे.वि.स./ प्रचालन/106/01/2021/11231-11272 दिनांक: 03.12.2021

विषय: उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 189वीं बैठक का कार्यवृत |

Subject: Minutes of 189th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 189वीं बैठक दिनांक 23.11.2021 को आयोजित की गयी थी। उक्त बैठक का कार्यवृत्त उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट http://164.100.60.165 पर उपलब्ध है। यदि कार्यवृत पर कोई टिप्पणी हो तो कार्यवृत जारी करने के एक सप्ताह के अन्दर इस कार्यालय को भेजें |

189th meeting of the Operation Co-ordination Sub-Committee of NRPC was held on 23.11.2021. The Minutes of this meeting has been uploaded on the NRPC website http://164.100.60.165. Any comments on the minutes may kindly be submitted within a week of issuance of the minutes.

संलग्नक: यथोपरि

(ऋतुराज पाण्डेय)
कार्यपालक अभियंता (प्रचालन)

सेवा में,

उ.क्षे.वि.स. के प्रचालन समन्वय उप-समिति के सभी सदस्य

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 189वीं बैठक का कार्यवृत्त

189th meeting of OCC of NRPC was held on 23.11.2021 through video conferencing.

खण्ड-क: उ.क्षे.वि.स. **PART-A:NRPC**

1. Confirmation of Minutes

Minutes of 188th OCC meeting was issued on 09.11.2021. OCC confirmed the minutes.

2. Review of Grid operations of October 2021

2.1. Anticipated vis-à-vis Actual Power Supply Position (Provisional) for October 2021

Reasons submitted by states for significant deviation of actual demand from anticipated figures during the month of October 2021 are as under:

- **Delhi**

4925 MW was anticipated peak demand for Oct 2021. However, the actual peak demand met for Oct 2021 is 5391 MW. The variation between actual and anticipated peak demand is (+) 9.46 %. In Oct 2019, peak demand met was 4605 MW. In Oct 2020, peak demand met was 4820 MW. In Oct 2021, the % age increase in actual and anticipated energy consumption is 0.43%. In the month of October-2021, the demand is high as compared to previous year due to hot and humid weather.

- **Uttarakhand**

Actual energy/demand was higher as compared to anticipated energy/demand for the month of October,2021 due to cold weather conditions.

- **Rajasthan**

The Energy consumption & Peak Demand decreased by 10.1 % & 6.2 % respectively w.r.t. Anticipated Energy requirement & Peak demand for Oct-2021 due to Scheduled and unscheduled power cut in the state due to coal shortage during the month of October' 2021.

- **Himachal Pradesh**

The Anticipation in Energy requirement and peak demand in respect of Himachal Pradesh for the month of October,2021 came on higher side due to heavy rush of tourists & opening of all education institutes.

- **Uttar Pradesh**

Availability of power was less due to coal shortage and actual demand/energy consumption was lower due to unusual rains during the month of October 2021.

2.2. Power Supply Position for NCR:

The Sub-Committee was informed that the NCR Planning Board (NCRPB) is closely monitoring the power supply position of National Capital Region. Monthly power

supply position for NCR till the month of October, 2021 was enclosed in the agenda and same was discussed in the meeting.

No significant deviation in any of the states was observed.

3. Maintenance Programme of Generating Units and Transmission Lines

3.1. The maintenance programme of generating units and transmission lines for the month of December 2021 was deliberated in the meeting on 22.11.2021.

3.2. NR-1/PGCIL representative apprised the forum that Rihand Dadri HVDC Pole-1 is ready to charge from their side but inspection by CEA electrical inspectorate is awaited.

3.3. Following shutdown requests were also discussed in the OCC meeting:

POWERGRID NORTHERN REGION-II

SUBJECT :- SD REQUEST FOR TRANSMISSION ELEMENTS for 189th OCC MEETING

S.N.	Details of Transmission Element		Category of element	DURATION				Daily/ Continuous	Reason	Decision of OCC
				FROM		TO				
	Voltage level (KV)	NAME OF THE ELEMENT AND SUBSTATION		DATE	TIME	DATE	TIME			
X-2	For construction activity									
2	400kV	400kV D/C Kala Amb -Wangtoo	Circuit No - II	12/1/2021	07.00 Hrs.	12/5/2021	18.00 Hrs.	Daily	NON - AUTO MODE required for OPGW installation works under ULDC scheme.	approved
				12/11/2021	07.00 Hrs.	12/24/2021	18.00 Hrs.	Daily		approved
23	765kV	765kV Moga - Meerut	N/A	12/1/2021	07.00 Hrs.	12/3/2021	18.00 Hrs.	Daily	NON - AUTO MODE required for OPGW installation works under ULDC scheme.	approved
				12/6/2021	07.00 Hrs.	12/8/2021	18.00 Hrs.	Daily	NON - AUTO MODE required for OPGW installation works under ULDC scheme.	approved
				12/13/2021	07.00 Hrs.	12/20/2021	18.00 Hrs.	Daily	NON - AUTO MODE required for OPGW installation works under ULDC scheme.	approved
X-3	For O&M activity									
1	400kV	400kV Banala Amritsar TL	A	01.12.2021	09:00 HRS	31.12.2021	18:00 HRS	DAILY	For replacement of disc insulator with CLR polymer insulators on alternate day basis with non auto of 400KV Banala Hamirpur, Hamirpur Jalandhar & Jalandhar Amritsar	approved
2	400kV	400kV Banala Hamirpur TL	A	01.12.2021	09:00 HRS	31.12.2021	18:00 HRS	DAILY	For replacement of disc insulator with CLR polymer insulators on alternate day basis with non auto of Amritsar Banala	approved
3	400kV	400kV Hamirpur Jalandhar TL	A	01.12.2021	09:00 HRS	31.12.2021	18:00 HRS	DAILY	For replacement of disc insulator with CLR polymer insulators on alternate day basis with non auto of Amritsar banala	approved
4	765KV	765KV Bikaner 1 Bay	A	01.12.2021	09:00 HRS	01.12.2021	1300 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
5	765KV	765KV BR Bay	A	01.12.2021	14:00 HRS	01.12.2021	1800 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
6	765KV	765KV Bikaner 1 BR1 Tie	A	02.12.2021	09:00 HRS	02.12.2021	1300 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
7	765KV	765KV Bikaner 2 Bay	A	02.12.2021	14:00 HRS	02.12.2021	1800 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
8	765KV	765KV BR Bay	A	03.12.2021	09:00 HRS	03.12.2021	1300 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
9	765KV	765KV Bikaner 2 BR 2 Tie	A	03.12.2021	14:00 HRS	03.12.2021	1800 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
10	765KV	765KV Meeruit Bay	A	04.12.2021	09:00 HRS	04.12.2021	1300 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
11	765KV	765KV Meeruit- ICT-I Tie	A	04.12.2021	14:00 HRS	04.12.2021	1800 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
12	765KV	765KV ICT-I Bay	A	05.12.2021	09:00 HRS	05.12.2021	1300 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
13	765KV	765KV Bhiwani 1Bay	A	05.12.2021	14:00 HRS	05.12.2021	1800 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
14	765KV	765KV Bhiwani -ICT-I Tie	A	06.12.2021	09:00 HRS	06.12.2021	1300 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved
15	765KV	765KV ICT-II Bay	A	06.12.2021	14:00 HRS	06.12.2021	1800 Hrs	DAILY	For washing of Insulators in view of Huge pollution in the area	approved

Category A: Transmission elements at 400 kV and above.
Category B: Transmission elements at 132 kV and above level emanating from ISGS.
Category C: Transmission elements at 132 kV and above which are inter-regional in nature.

4. Planning of Grid Operation

4.1. **Anticipated Power Supply Position in Northern Region for December 2021**

The updated anticipated Power Supply Position for December 2021 is as below:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	110	230	No revision submitted
	Requirement	120	270	
	Surplus / Shortfall	-10	-40	
	% Surplus / Shortfall	-8.3%	-14.8%	
DELHI	Availability	3549	5250	22-Nov-21
	Requirement	2250	5250	
	Surplus / Shortfall	1299	0	
	% Surplus / Shortfall	57.7%	0.0%	
HARYANA	Availability	4790	10770	No revision submitted
	Requirement	4160	7080	
	Surplus / Shortfall	630	3690	
	% Surplus / Shortfall	15.1%	52.1%	
HIMACHAL PRADESH	Availability	983	1870	11-Nov-21
	Requirement	968	1890	
	Surplus / Shortfall	15	-20	
	% Surplus / Shortfall	1.5%	-1.1%	
J&K and LADAKH	Availability	1030	3650	No revision submitted
	Requirement	2060	2920	
	Surplus / Shortfall	-1030	730	
	% Surplus / Shortfall	-50.0%	25.0%	
PUNJAB	Availability	4710	9280	22-Nov-21
	Requirement	3961	7220	
	Surplus / Shortfall	749	2060	
	% Surplus / Shortfall	18.9%	28.5%	
RAJASTHAN	Availability	8380	18710	No revision submitted
	Requirement	8370	14710	
	Surplus / Shortfall	10	4000	
	% Surplus / Shortfall	0.1%	27.2%	
UTTAR PRADESH	Availability	9610	18200	16-Nov-21
	Requirement	9145	18200	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	465	0	
	% Surplus / Shortfall	5.1%	0.0%	
UTTARAKHAND	Availability	1197	2250	03-Nov-21
	Requirement	1178	2287	
	Surplus / Shortfall	19	-37	
	% Surplus / Shortfall	1.6%	-1.6%	
NORTHERN REGION	Availability	34358	64000	
	Requirement	32212	54600	
	Surplus / Shortfall	2146	9400	
	% Surplus / Shortfall	6.7%	17.2%	

5. Submission of breakup of Energy Consumption by the states

5.1. The updated status on the submission of energy consumption breakup is presented below:

State / UT	From	To
Delhi	Apr-2018	Sep-2021
Haryana	Apr-2018	Sep-2021
Himachal Pradesh	Apr-2018	Aug-2021
Punjab	Apr-2018	Jul-2021
Rajasthan	Apr-2018	Aug-2021
Uttar Pradesh	Apr-2018	Jul-2021

5.2. OCC forum again raised expressed concern on non-submission of energy breakup data by Uttarakhand, UTs of J&K & Ladakh, and Chandigarh despite repeated reminders.

6. System Study for Capacitor requirement in NR for the year 2019-20

6.1. OCC forum was intimated that NRPC in its 48th meeting decided that the study report for 2019-20 along with the guidelines for finding the capacitor requirement at 11/33 kV level in NR would be submitted by CPRI. Accordingly, CPRI have submitted the system study report on 24.02.2021 and thereafter same was shared with the constituent states. The recommended capacitor compensation, additionally required as per the report is 352MVAr. The report has brought out the additional requirement of 137MVar and 215MVar compensation for Punjab and J&K respectively. Moreover, empirical relationship for capacitor requirement against voltage profile at 11 kV, based on two configurations has been worked out in the report.

6.2. In the 45th TCC / 48th NRPC meeting, it was decided after the submission of report for 2019-20 and the guidelines, the same would be studied by the same sub-group who had earlier recommended for guidelines and foreclosure of the contract. Based on Committee's recommendations, NRPC Sectt. can process the pending bills of Rs. 14 lakhs (Rs. 2 + 12 Lakhs), excluding taxes along with foreclosure of the contract. Accordingly, submitted report needs to be examined by the Committee.

6.3. In 181st OCC, forum decided that sub-group comprising of following officers would study the report and submit the recommendation report within two weeks:

6.4. NRPC Sectt. sought comments/observations on the CPRI report from all the states via e-mail. Comment from Delhi was received. Rajasthan, HP, Punjab, Haryana submitted NIL comment. Comment from rest of the members was not received.

6.5. In the 182nd OCC meeting, forum decided that a video-conferencing meeting may be held by members of sub-group to finalize the comments, latest by 30th April, 2021 and compiled comments may be sent to CPRI for necessary correction in the report.

6.6. The meeting of sub-group was held on 03.05.21. In the meeting, sub-group members decided to get PSSE file from CPRI for better understanding, which was later shared with them.

6.7. In 183rd OCC meeting, NRPC representative requested for any other comments on the CPRI report, if remaining, from any of the members. Sub-group committee member from Rajasthan stated that since the CPRI report is for the year 2019-20, old data needs to be collected and then values in the CPRI report would be checked. It was further intimated that around 2-3 days' time would be required for this task. Forum decided that after receiving observations/comments from Rajasthan, the compiled observations / comments may be sent to CPRI so that necessary corrections may be done in the draft report.

6.8. In 184th OCC, forum was apprised that compiled comments have been mailed to CPRI vide email dated 28th May'21 with a request to submit the corrected report within two weeks' time.

6.9. CPRI vide email dated 31st May'21 communicated that majority of comments are on the modeling of base case PSSE file. Since the file is given by NRPC and CPRI has not modeled it; so, they are not in position to make any comment on the accuracy & modeling of file.

6.10. In the 185th OCC, NRPC stated that CPRI has submitted on 28th June 2021 its point-wise reply on the observations of sub-group along with updated report. OCC forum decided that a video-conferencing meeting may be held within sub-group members and CPRI for further discussion on reply of CPRI.

6.11. In the 186th OCC meeting, NRPC representative apprised the forum that in line with decisions of 185th OCC, a meeting was held on 06.08.2021 under the chairmanship of MS, NRPC through Video Conferencing. It was attended by members of the sub-group, CPRI representatives, and officials from NRPC Sectt & NRLDC.

6.12. It was also stated that in the meeting dt. 06.08.2021, comments of the sub-group on the latest version of CPRI report were deliberated in detail. After weighing the merits of the original & revisions of the report, following were decided:

- First Report submitted by CPRI in September, 2020 shall be considered as the reference report. CPRI confirmed that the base-case of 11.07.2018 at 00:45 hrs. received from NRPC Sectt has been used for preparing September, 2020 report.
- Comments from all utilities and NRLDC on September 2020 report must be submitted to NRPC Sectt, latest by 24.08.2021.
- NRPC Sectt, after examination, shall share with CPRI the compiled comments of the utilities and NRLDC, latest by 31.08.2021.
- Thereafter, CPRI shall submit its reply on the compiled comments sent by NRPC Sectt, latest by 15.09.2021.

6.13. It was further intimated that base case file (11.07.2018 00:45 hrs) and CPRI's Sep'2020 report were e-mailed to all sub-group members on 10.08.2021 along with the request to submit comments/observations thereon, latest by 24.08.2021.

6.14. In the meeting (187th OCC), forum was apprised that although last date for submission of comments was 24.08.2021, NRPC Sectt. received comments from Himachal Pradesh, Punjab, Rajasthan, Delhi, and NRLDC vide mails dtd. 24.08.2021, 25.08.2021, 26.08.2021, 31.08.2021, and 03.09.2021 respectively. As the received comments were also on the base-case data, a meeting was held on 06.09.2021 among officers of NRPC Sectt, NRLDC and above four states for discussing comments before sending to CPRI. After detailed discussions, following were decided:

A. Himachal Pradesh:

a) It was apprised by NRLDC that generation data of micro IPPs has not been modelled by them in base-case due to their small quantity. Further, Capacitor at Baddi needs to be removed from base-case.

b) HP was requested to submit within 3 days data regarding (11.07.2018 00:45 HRS):

i. Generation break-up along with details of micro IPPs.

ii. Capacitors at 132 kV level.

iii. Nodes of major voltage profile mismatch

iv. Load factor of state (current scenario if data of past is not available)

c) It was decided that after getting above data from HP, base-case will be tuned by NRLDC before sending to CPRI.

B. Punjab:

a) All switched reactors/capacitors to be converted into fixed & net shunt capacitor value in the base-case to be corrected as per Punjab's comment.

b) Punjab was requested to submit low voltage nodes (11.07.2018 00:45 HRS) within 3 days.

c) Based on data from Punjab, initial tuning to be done by NRLDC for Q values of generators. CPRI may be required to do further tuning.

C. Rajasthan:

a) Except low voltage points, power factor needs to be upgraded in the base-case.

b) Rajasthan representative confirmed that most of the capacitors were off during the time for which modelling is done, so lumped capacitor at 132kV needs to be deleted.

c) Rajasthan was requested to submit

i. List of bus-wise capacitors and their status (OFF/ON condition) on 11.07.2018 00:45 HRS.

ii. Voltage profile of generator buses.

D. Delhi:

a) Delhi was requested to submit voltage profile of generator buses.

6.15. It was decided that after receiving data from above four states, NRLDC will tune the basecase initially and will also ensure that regional generators shall not absorb reactive power in the base-case and then base case will be sent to CPRI along with compiled comments.

6.16. In 188th OCC, it was apprised that CPRI vide e-mail dtd. 23.09.2021, requested to send comments at the earliest.

6.17. NRPC Sectt. vide e-mail dtd. 23.09.2021 apprised the CPRI that as per decisions of meeting dtd. 06.09.2021, tuning of base-case file is being done by NRLDC so that no new issue arises in future.

6.18. CPRI vide e-mail dtd. 24.09.2021 has requested that any change in loading & generation profile will be a new base case and this will be a fresh study for new base case. It will require an extensive time and efforts. CPRI has requested to ensure that load/generation profile in tuned PSSE should be same as was given to CPRI for PSSE base 11.7.2018 at 00.45.

6.19. In view of CPRI's request, NRLDC was requested vide e-mail dtd. 24.09.2021 to halt tuning of base-case till further discussion.

6.20. A meeting was held between NRPC Sectt. and NRLDC on 04.10.2021, wherein it was decided that without incorporating corrective comments of states, the report is not acceptable w.r.t drawing any conclusion on requirement of capacitor. Accordingly, NRLDC was requested vide e-mail dtd. 08.10.2021 to complete tuning of base-case at the earliest.

6.21. NRLDC representative informed that tuned base-case will be submitted by NRLDC by 28.10.2021. It was decided that the same will be sent to CPRI for necessary correction in report.

6.22. Tuned base-case has been received from NRLDC vide mail dtd 10.11.2021.

6.23. In 189th OCC, NRPC representative apprised that tuned base-case along with comments of states will be sent to CPRI for necessary correction in the report.

7. Automatic Demand Management System

7.1. Forum was informed that as decided in the 175th OCC meeting, to conduct separate meeting with states, nominations are pending from PuVVNL, PVVNL, MVVNL, DVVNL, UPPTCL, UPCL, PTCUL, SLDC Uttarakhand, and J&K. They were requested on 01.03.2021 to submit nominations for the meeting.

7.2. Meetings on ADMS implementation roadmap have been held with the officers of Haryana, HP, Punjab and UP on 05.02.2021, 19.02.2021, 05.03.2021 and 14.07.2021 respectively. In these meetings, issues and apprehensions on ADMS were discussed along with vital aspects like addressing the commercial issues, basic architecture for scheme and funding possibilities for the scheme.

7.3. As per the request of states for DPR of any state that has got PSDF support for ADMS, website link of PSDF Sectt. has been shared with Haryana, Himachal Pradesh, Punjab and Uttar Pradesh for accessing DPR. SLDCs were also requested to expedite the submission of pending nominations.

7.4. In 186th OCC, In-charge, NRLDC stated that as per IEGC, implementation of ADMS is mandatory. It helps in reducing DSM charges also. States must take it seriously.

7.5. MS, NRPC stated that non-implementation of ADMS by states is indistinguishably non-adherence to directions of CERC. He enquired from NRLDC whether POSOCO has made any communication with CERC regarding non-adherence of its deadline i.e., 31.06.2016. NRLDC representative stated that he would look into and inform in next meeting.

7.6. NRPC representative added that initial deadline for ADMS implementation was 1st January 2011 as per para 5.4.2 (d) of IEGC. Later, CERC has taken suo-motu cognizance of non-implementation of ADMS by states and given 31.06.2016 as deadline vide its order dt. 31.12.2015 in petition no. 5/SM/2014. Implementation deadline given by the statutory and regulatory body need to complied by concerned SLDC / SEB / distribution licensee as per regulation no. 5.4.2 (a) & (b) of IEGC. Moreover, hand holding process for project proposal preparation in respect of four NR states has already been done by NRPC

7.7. Forum decided that NRLDC may file a report to CERC based on compiled status of ADMS implementation in states of Northern Region.

7.8. In 187th OCC, NRLDC representative quoted the texts of CERC order dt. 31.12.2015 in petition no. 5/SM/2014. He apprised the status of ADMS implementation till 2015. Further, he requested the states to update the status so that NRLDC may file petition in CERC on the basis of compiled status.

7.9. In 188th OCC, NRLDC informed that it has not received comments from states in this matter. Accordingly, all SLDC/DISCOMs are requested to furnish the latest status of ADMS implementation in their respective control areas latest by 31st October 2021 to NRLDC. Status as received till 31.10.2021 would be reported to CERC by NRLDC.

7.10. In the meeting (189th OCC), NRLDC informed that status of ADMS has been sent to CERC twice (Aug'16 and Sep'16) in the past. The same is recorded in MoM of 127th OCC also.

7.11. NRLDC representative informed that CERC will be apprised again within next 10 days about the latest status of ADMS as per the updated information available with them.

8. Follow-up of issues from various OCC Meetings - Status update

8.1 The updated status of agenda items is enclosed at **Annexure-A.I.**

9. NR Islanding scheme

9.1. Based on the decisions taken in the meeting taken by Hon'ble Minister of State (IC) for Power and New & Renewable Energy on 28.12.2020, Islanding Schemes for NR have been continuously reviewed/discussed in various forums.

9.2. In 187th OCC, it was decided that states shall submit MIS report before every OCC meeting so that same may be discussed. Format was circulated vide agenda of 187th OCC.

9.3. It was also highlighted that MoP has agreed for PSDF funding for implementation of islanding schemes and states were requested to prepare and submit DPR for the same. Further, a sample DPR on implementation of Islanding scheme for PSDF funding has been already circulated vide email dated 07.10.2021 and requested to expedite the preparation of DPR.

9.4. Utilities were requested to refer and submit SOP for every Islanding scheme in their control area.

9.5. A meeting was also taken by Honorable Cabinet Minister (Power, New & Renewable Energy) on 07.10.2021 wherein emphasis was given on PSDF funding for Islanding schemes and DPR submission for the same. MoM has been issued and copy of the same was enclosed as Annexure-A.II of agenda.

9.6. In the meeting (189th), NRPC representative highlighted no progress from states of Punjab, Uttarakhand, Himachal, J&K, Ladakh.

9.7. UP and Punjab representatives stated that they have sent the offer along with data to CPRI for study of Islanding Schemes.

9.8. HP intimated that system study is under process at DISCOM end.

9.9. Rajasthan SLDC assured the submission of RAPS SCADA display on the same day.

9.10. NRLDC submitted that they use PSSE software for system study but Rajasthan has submitted details of Islands in MI Power Software, therefore, they are exploring whether they can use that file.

9.11. MS, NRPC desired to know the reason for sending data to CPRI for system study. He stated that it may be done at state level itself.

9.12. UP representative stated that they are not able to perform dynamic system study as it involves parameters like rotor inertia, hunting, etc.

9.13. MS, NRPC expressed concern regarding apathy of states in implementation of Islanding Schemes. He stated that all SLDCs will intimate the names of Islands for which system study from CPRI is required along with justification for the same by 30th Nov, 2021. He also set timeline of 30th Nov, 2021 for Delhi to submit SOP data. He stated that communication may be sent to RAPS for submission of SOP data at the earliest.

10. Coal Supply Position of Thermal Plants in Northern Region

10.1. In the meeting, NRPC representative apprised the forum about the coal stock position of generating stations in northern region during current month (till 10th November 2021).

11. Declaration of spell of heavy rain fall and heavy snowfall during the period of 23rd and 24th Oct 2021 as state specific Natural disaster under SDRF Norms (Agenda by NR-2/POWERGRID)

11.1. NR-2 POWERGRID vide email dated 12.11.2021 submitted that there was spell of heavy rain fall and heavy snowfall during the period of 23rd and 24th Oct 2021 in Hilly terrain of Jammu and Kashmir and Department of Disaster management, Relief Rehabilitation and Reconstruction had declared it as STATE SPECIFIC NATURAL DISASTER under SDRF Norms for Udhampur, Kishtwar, Reasi, Samba, Kathua, Anantnag, Kulgam and Sophian Districts of J&K. Copy of order issues by Department of Disaster management, Relief Rehabilitation and Reconstruction UT of J&K attached as Annexure-A.III of the agenda.

11.2. In view of above, outage of elements on 23rd and 24th Oct'2021 in the area declared as Natural disaster may please be considered outage under natural calamity.

11.3. NRPC representative stated that SDRF norms are for grant of relief to affected families/people in case of natural calamity. Declaration of state specific calamity on 23rd and 24th Oct 2021 in some districts of J&K signals that weather may be abnormal but it may not be directly implied in case of towers and transmission lines made of metal. It needs other substantial details to arrive on any conclusion.

11.4. PGCIL representative stated that 7 lines was affected, 1 tower is on ERS and 1 tower is collapsed. He added that CEA inspection has been done at site and report is awaited.

11.5. MS, NRPC asked NR-2 Powergrid to submit a copy of CEA's inspection report.

12. Modification in SPS for reliable evacuation of power from 400/220kV Chamera Pooling (Chamba) Substation required for evacuation of power from 180 MW Bajoli-Holi HEP in interim arrangement (Agenda by HPPTCL)

12.1. HPPTCL submitted that a meeting with CTU, POSOCO, HPPTCL, HPSEBL, GMR, Greenko, was held on 17-06-2021 under the Chairmanship of Chief Engineer (PSPA-1) CEA regarding the issues related to transmission system for evacuation of power from Bajoli-Holi HEP (180 MW). (Minutes of the above said meeting attached at Annexure-A.IV of agenda*).*

12.2. In this respect, it is intimated that HPPTCL had on 07-07-2020 commissioned the 220/33kV Substation at Lahal and 220kV S/C Lahal-Budhil Transmission Line for evacuation of power from Small HEPS coming at Lahal Substation.

12.3. The permission for commissioning of this system which is also part of interim evacuation system of Bajoli-Holi HEP was granted after the implementation of SPS by HPPTCL to avoid overloading of 2x315 MVA Transformer bank at Chamera-III and to avoid overloading of 220kV Transmission Line from Chamera-III to Chamera Pooling which was then on breakdown and only one ckt. was functioning through ERS with restricted power flow.

12.4. Now this transmission line has been restored to its full capacity. The SPS scheme was approved by NRLDC vide email dt. 29-06-2020 (copy of implemented SPS Scheme along with testing report is enclosed at Annexure-A.V of agenda).

12.5. In order to evacuate power from 180 MW Bajoli-Holi HEP through this interim arrangement 220 kV Bajoli-Holi Lahal Transmission Line is nearing completion and one ckt. of this line has already been test charged on 10.11.2021. HPPTCL has already filed a petition with Hon'ble UERC for evacuation of 26 MW power for SHP's & 60 MW of Bajoli Holi HEP till March 2022. With this interim arrangement the total power to be evacuated through 220kV S/C Budhil-Chamera Line shall be less than its capacity i.e. 180 MW.

12.6. In view of the above, the SPS scheme already implemented needs to be revised. A draft SPS scheme for the new proposed interim arrangement has been prepared and a copy of the same is attached as Annexure-A.VI of agenda). This draft scheme was also shared with NRLDC and they have vide their email dt. 12th Nov 2021 conveyed their concurrence to the proposal.

12.7. It is requested that proposed modifications in the SPS scheme may please be considered & approved by Sub-Committee so that based on the final approval, work for implementation of the same can be taken up before commissioning of the Bajoli-Holi HEP.

12.8. NRPC representative apprised the proposed SPS scheme of HPPTCL.

12.9. NRLDC representative stated that SPS scheme has been scrutinized and found to be in order and same has been intimated to HPPTCL also.

12.10. The sub-committee concurred the modified SPS logic.

13. Charging Deemed availability of outage of Transmission lines for installation of Bird Diverter as per requirement of NGT (Agenda by NR-1/POWERGRID)

13.1. NRPC representative stated that in the 183rd OCC meeting, POWERGRID

brought agenda for considering the outage needed for installing Bird Diverters (under the NGT order) as deemed available.

13.2. In 185th OCC, forum decided that since installation of bird diverters is being done on the direction of court and NGT, the number of outage days projected by POWERGRID for eleven lines (enclosed as Annexure-A-IV of 185th Agenda) may be considered as deemed available.

13.3. POWERGRID vide letter dt. 02.11.2021 has submitted the details for installation of bird diverters in 2nd phase for consideration of deemed availability. The same was attached as Annexure-A.VII of agenda.

13.4. MS, NRPC asked NR-1 representative whether there will be any other line remaining for installation of bird diverter after this 2nd phase.

13.5. NR-1/POWERGIRD representative apprised the forum that after installation of bird diverters as proposed in 2nd phase, there will be no other lines pending.

13.6. Forum approved deemed availability for lines as attached in Annexure-A.VII of agenda.

14. Installation of good quality bird flight diverter (BFD)

14.1 NRPC representative stated that CEA has issued a letter dtd 10.11.2021 that they are getting various complaints on installation of poor-quality bird diverters. Sometimes disc of bird diverters are found strewn in land below transmission lines. It may be due to poor quality of product, inadequate design by manufacturer or improper installation.

14.2 NRPC representative highlighted that CEA has issued technical specifications for bird diverter that may be complied by utilities for ensuring proper installation of bird diverters.

14.3 MS, NRPC asked Powergrid to take cognisance of the CEA letter and ensure that technical specifications issued by CEA are compiled during installation of bird diverters.

15. Review of SPS for evacuation of generation of Lalitpur TPS (Agenda by UP SLDC)

15.1. NRPC representative stated that UP SLDC vide letter dated 15.11.2021 has submitted the proposed revised logic for SPS for evacuation of Lalitpur TPS in view of commissioning of 765kV Fatehabad – Greater Noida line. UP SLDC has submitted the old & the proposed logic along with the comments of Lalitpur TPS and requested for the approval of the revised scheme (copy of letter is attached at Annexure-A.VIII of agenda).

15.2. NRPC representative presented the matter and apprised the forum that scheme has been sent to NRLDC for comments.

15.3. For Case-2 of proposed SPS, Lalitpur TPS representative requested that, instead of bringing one machine to house load condition, it is recommended to trip one selected machine and the command block is not required. NRLDC representative consented for the same.

15.4. For Case-3 of proposed SPS, Lalitpur TPS representative requested that 200 MW backing down may be done by automatic mode and 200 MW may be done by manual mode. NRLDC representative consented for the same.

15.5. For Case-5 of proposed SPS, Lalitpur TPS representative requested that 200 MW backing down may be done by automatic mode and rest of backing down may be done by manual mode. NRLDC representative consented for the same.

15.6. NRLDC representative added that Lalitpur TPS may be asked to revise the SPS if oscillation is observed.

15.7. Lalitpur representative informed that PSS tuning for 1 unit has been done and they are doing for rest 2 units also.

15.8. Forum approved the SPS with above discussion.

16. Table agenda: By-passing the Kala Amb S/s by connecting wangtoo line with Abdullapur Ckt-2 (agenda by NR-2/PGCIL)

16.1. NRLDC stated that on 14 November 2021, 400KV WANGTOO (HPPTCL)-KALA AMB-1 was opened on Voltage regulation, charging attempt taken from Wangtoo end at 05:18hrs but line did not hold due to R N Fault. After Detailed analysis the Internal Flashover is found in Gas zone 6 compartment of GIS duct from Line isolator to GIB bushing R Phase of 400KV Kala Amb -Wangtoo Line at Kala Amb Substation.

16.2. NR-2 PG mentioned that the rectification of this fault will take approximately 15 days. It will not be possible to charge this line through this bay at Kala Amb substation and shall be out of service for the said period. In order to continue the evacuation of power of Karcham Wangtoo power house, NR-2 PG proposed to by-pass the Kala Amb S/s by connecting wangtoo line with Abdullapur Ckt-2 Line at Gantry of Kala Amb Substation.

16.3. Given the high loading of 400 kV Wangtoo_GIS - Sorang - KalaAmb line during peak hours (~800MW), forum approved the bypass arrangement as proposed by PG NR-2 in the interest of grid security subject to requisite change in protection setting by PG NR-2 and HP in coordination with NRLDC.

खण्ड-ख: उ.क्षे.भा.प्रे.के. Part-B: NRLDC

17. Procedure for Planning of Inter-State Transmission System (ISTS)

NRLDC representative stated that a Draft Procedure for planning of Inter-state Transmission System has been prepared in accordance with Electricity (Transmission System Planning, Development and Recovery of Inter-State Transmission Charges) Rules, 2021. This procedure shall be applicable to stakeholders such as Central Government, State Governments, Central Transmission Utility (CTU), Central Electricity Authority (CEA), Regional Power Committees (RPCs), State Transmission Utilities (STUs), Generation companies, System Operators (National, Regional, and State), Licensees, and any other person notified by the Central Government in this

behalf. This Procedure shall come into effect from the date it is published on CTU website.

In the meeting, it was deliberated that the Draft Procedure is available at CTU website along with Annexures for observations of stakeholders. All utilities are requested to send their comments to CTU with copy to NRPC/NRLDC.

MS NRPC stated that these are major changes in procedure as per order issued by Ministry of Power. He also highlighted that transmission planning is very important exercise and all utilities should submit their comments to CTU. It was also highlighted that this was done to facilitate RE capacity addition to capacity of 500GW by 2030. The procedure specifies timelines for different activities under the planning exercise. The procedure is for planning of interstate transmission system only, so it is expected that intrastate planning would be continued under the aegis of CEA.

MS NRPC also stated that as per the present practise, the planning exercise activities are taken care by CEA and CTU. Amendment order regarding role of RPC in planning exercise is awaited. As per the amendment of role and responsibility of RPC in TOR, the activities would be carried out by RPC.

18. Grid Highlights for October 2021

NRLDC representative presented major grid highlights of October 2021:

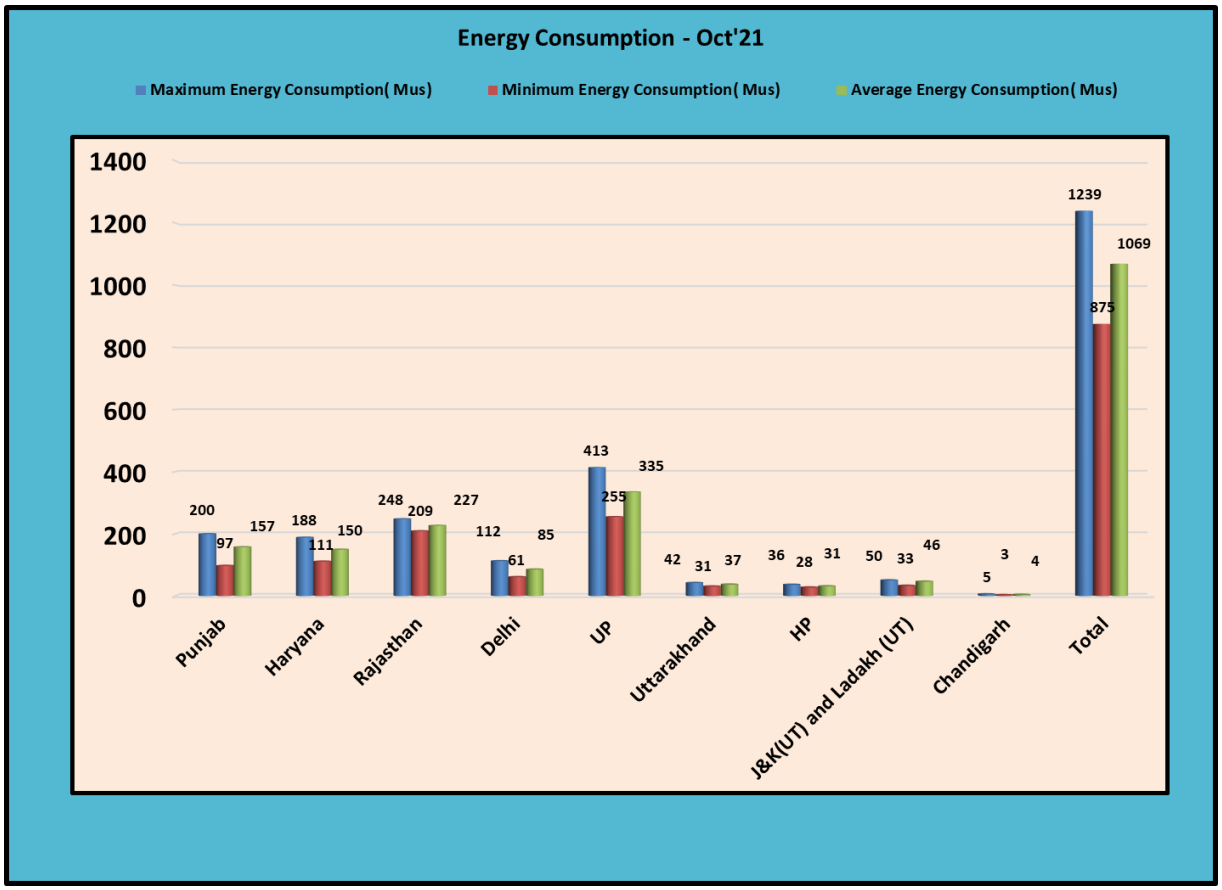
In Oct'21, the Maximum energy consumption of Northern Region was 1238 Mus on 12th Oct'21 and it was 1 % lower than Oct' 2020 (1252 Mus 1st Oct'20)

In Oct'21, the Average energy consumption per day of Northern Region was 1070 Mus and it was 2 % lower than Oct'20 (1093 Mus per day)

In Oct'21, the Maximum Demand met of Northern Region was 57491 MW met on 12th Oct'21@ 13:00 hours (Based on data submitted by Constituents) as compared to 57975 MW met on 1st Oct'20 @ 20:00 hours

Northern Region all time high value recorded in Oct' 21:

Energy Generation	**All Time High Record**		**Previous Record (upto Sept-21)**	
	Value (MU)	**Achieved on**	**Value (MU)**	**Achieved on**
Solar Generation	**68.20**	**25.10.21**	60.49	16.09.21

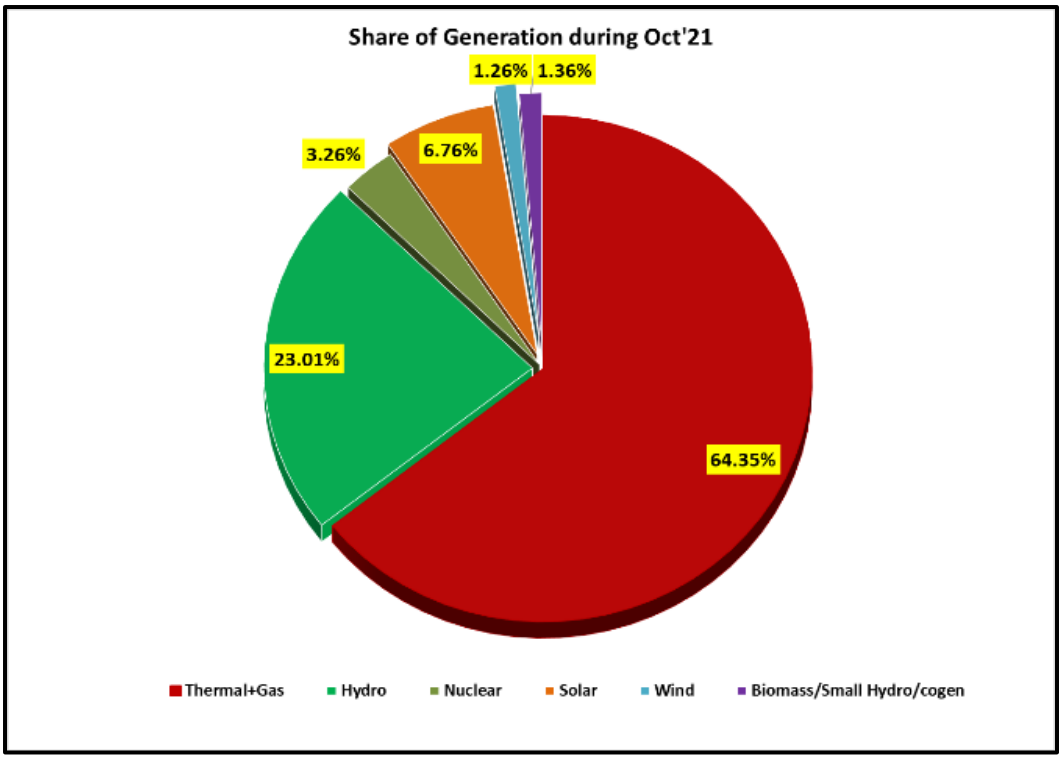


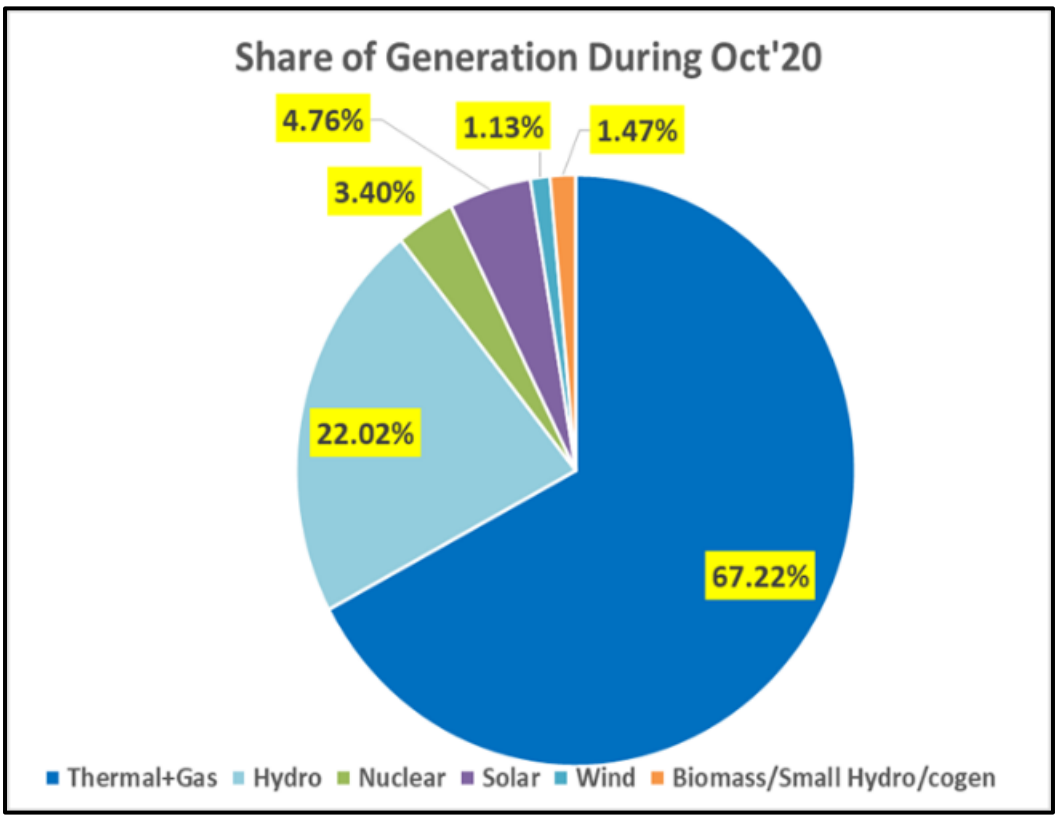
Comparison of Average Energy Consumption (MUs/Day) of NR States for the Oct'2020 vs Oct '21

Region/State	Oct- 2020	Oct-2021	% Of Variation
पंजाब	152.42	157.30	3.20
हरियाणा	155.20	149.51	-3.67
राजस्थान	242.28	226.56	-6.49
दिल्ली	80.12	85.38	6.57
उत्तरप्रदेश	347.62	334.79	-3.69
उत्तराखंड	36.53	36.88	0.95
चंडीगढ़	3.65	4.07	11.53
हिमाचल प्रदेश	29.18	31.31	7.30
जम्मू और कश्मीर	46.34	44.05	-4.93
उत्तरी क्षेत्र	1093.35	1069.85	-2.15

In Oct'21, Frequency remained within IEGC band for 74.00% of the time.

Total average per day energy production by Northern region was 919.42 Mus in the month of Oct'21 in comparison of 782.46 Mus in Oct'20. The fuel wise share of generation is shown below.





In Oct'21, Frequency remained within IEGC band for only 74% of the time. Emergent contingency events during such times such as large generation outage, could result in further drop in frequency and therefore, overdrawals below 49.90 Hz must be controlled quickly in order to keep system secure.

During this month some of the NR states also had overdrawal contributing to low frequency operation. NRLDC has been continuously requesting all states to maintain its drawl within schedule during low frequency instances and also take necessary measures for revival of intrastate generating units

NR Constituents were once again requested to take initiatives to minimise sudden load changeovers at hourly boundaries and also monitor performance of generators under their jurisdiction when the frequency is having large excursions. All utilities were asked to ensure that RGMO/FGMO of generators under their control areas are in service and are responding as per frequency changes.

19. Sharing of hourly Load shedding under different categories on NRLDC Reporting Software

NRLDC representative stated that during a recent review of the country's power supply scenario, Secretary, Ministry of Power, emphasized the importance of ensuring accuracy of the hourly load shedding (MW) and energy not met (MU) figures being received from various SLDCs on daily basis in respect of their own states, and classifying them under different heads like low availability, transmission constraints, financial constraints, planned maintenance of transmission / distribution system within state, etc.

Although SLDCs are uploading the hourly load shedding figures of the previous day on the web-based reporting software of NRLDC the next day, but reason for the shedding or unserved demand at any hour is not segregated into the possible different categories.

In view of the above, all SLDCs were asked to classify the reason of shedding in the detail sheet of hourly load shedding, as per Annexure attached in agenda, in the daily power supply report, before uploading it to the web-based reporting software on daily basis.

20. Action Plan for Winter Preparedness 2021-22

NRLDC representative stated that in 187thand 188thOCC meeting, it was discussed that winter in Northern region is likely to start from mid of October till February end, and the challenges faced during these months were also discussed in the meeting. The challenges expected and actions to be taken by utilities were discussed in the meeting. However, details regarding actions taken by them are yet to be received.

a*) Load generation balance:*

- In line with section 5.3 of the IEGC, all constituents to have precise load forecasting & generation planning and forecast demand ramp on daily, weekly and monthly basis so that commensurate ramping of generation can also be planned *(Action by SLDCs)*
- SLDCs to optimally schedule hydro and gas generation to make sure that demand as well as ramp requirements are safely met *(Action by SLDCs)*.

- Minimize generation to technical minimum as per IEGC guidelines /CERC directions during low demand (*Action by ISGS, intrastate generators, NRLDC, SLDCs*).
- Delay in charging the lines after issuance of code (in the morning hours) to be minimised (*Action by ISTS licensees/ STUs*)
- Hydro generators to ensure to declare their maximum DC particularly during non-solar period, to ensure better management of power portfolio by the beneficiaries. (*Action by ISGS, intrastate generators)*

b) *High voltage management:*

- Ensuring disconnection of capacitors. To be confirmed by all STUs and SLDCs (*Action by SLDCs/ STUs/DISCOMs*). ***Punjab and Haryana SLDC representatives confirmed that all capacitors have been disconnected at transmission and sub-transmission level.***
- Ensuring healthiness of all commissioned reactors in the system (*Action by ISTS licensees/ STUs*)
- Monitoring of reactive power of generators and exchange of reactive power with ISTS through SCADA displays *(Action by SLDCs)*.
- Ensuring reactive power support (absorption) from generating stations by operating units upto their capability limits. (*Action by ISGS, intrastate generators, NRLDC, SLDCs*). To be discussed in detail in next agenda.
- Synchronous condenser operation especially of hydro units during night hours for dynamic voltage support. Some of the generators have already been tested successfully (Tehri, Chamera, Pong etc.) in synchronous condenser mode and shall be available for condenser mode of operation as and when required. Tehri unit has been tested successfully recently as well for synchronous condenser mode of operation.
- ***Punjab SLDC that work of magnetic float level indicator is still pending and utilization of RSD as synchronous condenser is expected by end of December' 2021.***
- ***NRLDC representative stated that it was highlighted by Director (System Operation), POSOCO in last NRPCTP meeting that the new hydro generators should be given techno-economic clearance by CEA only after fully exploring the possibility of utilization of machines as synchronous condenser.***
- ICT Tap Optimization at 400kV & above carried out by NRLDC. Same exercise needs to be carried out by SLDCs at 220kV & below levels. Scatter plots for these stations alongwith improvement observed are attached as Annexure-II of agenda. Improvement in voltage profile of some of the stations after tap change carried out at 400/220kV level was presented in the meeting.
- Haryana and UP requested in 188 OCC meeting, to check tap position change requirement at Panchkula(PG) and Rewa-road respectively. However, scatter plots of these stations as per NRLDC data do not suggest any need for tap change. Details attached as Annexure-II of agenda. ***Utilities were requested to send their analysis for tap change requirement.***

- ***Haryana SLDC representative stated that the voltages at Ballabgarh/Samaypur station remains high for most of the time. Tap optimization has already been done at underlying network and requested to check possibility of any tap optimization possible at 400/220kV Ballabgarh station.***
- ***NRLDC representative agreed to check the same and stated that such requests may be emailed by utilities and they shall not wait for OCC meeting in case of such requirements.***
- **SLDCs were also requested to provide the tap change exercise carried out by them or proposed to be carried out before winter. *(Action by SLDCs)*.**
- All utilities were requested to go through the Reactive Power document available at NRLDC website and report if any incorrect or missing information is noticed. The document is being utilized in real-time operation by control room operators at NRLDC, and thus it is necessary that updated document is available.
- Additional manpower if required, may be placed at critical substations (***Action by ISTS licensees/ STUs***).

c) EHV line trip during fog/Smog

Utilities were requested to ensure:

- Priority wise cleaning & replacement of damaged insulators.
- Monitor progress of cleaning and replacement of porcelain insulator with polymer insulator and furnish updated status to NRPC/NRLDC. (***Action by ISTS licensees/ STUs***).
- **Details received from CPCC NR-1.**

As agreed in 187thand 188thOCC meeting, utilities were requested to share action plan for measures to be taken by them for carrying out pre-winter maintenance activities and other actions agreed in 187th and 188th OCC meeting.

21. MVAR support from generators

Following has been discussed and agreed in TCC /NRPC meetings and OCC meetings of the Northern region:

- All generators (including intrastate) shall absorb MVAr as per capability curve
- Reactive power support performance and MVAR telemetry issues will be reviewed in monthly OCC meetings.
- Reactive power capability testing will be carried out after discussion in OCC meeting.

Reactive power response of generating stations is being regularly discussed in OCC meetings.

Reactive power response in respect of MVAr vs Voltage for past 15days (01.11.2021 - 15.11.2021) as per NRLDC SCADA data is enclosed as **Annexure-B.I.** Based on available data, it is observed that there are margins available as per capability curves

for most of the generating stations. In addition, telemetry (sign and magnitude of MVAR) of various state generating station is yet to be corrected.

IGSTPP Jhajjar and MGTPS Jhajjar were asked to absorb more MVAR as per the grid requirements. Stations were also asked to share their AVR settings and GT tap positions at the earliest. Punjab SLDC was asked to resolve the telemetry issues of Talwandi Saboo and Rajpura TPS stations.

Generating stations need to make sure that the AVR reference settings and GT tap positions for all units are optimized and mutually coordinated to achieve the reactive power performance as per grid requirements. It was also requested to share these details with NRLDC.

Representative of Lalitpur TPS stated they are operating AVR in auto mode which operates as per grid requirements. GT Tap optimization has already been done to ensure optimal voltage range of auxiliary supply. 330MVAR Reactor is expected to be commissioned at Lalitpur which would improve the reactive power profile of their area. UP SLDC was asked to discuss and ensure reactive power performance as per grid requirement. It was also discussed that in case of any issues, separate meeting may be called to discuss if the issues are not resolved.

UP SLDC had also shared MVAR plots of intrastate generators developed at their end. UP SLDC letter in this regard is attached as Annexure-IIIb of agenda. Efforts of UP SLDC were appreciated by OCC forum.

MS NRPC stated that in meeting with CERC, NRPC had highlighted the high voltage issues in Northern region and also suggested that some incentive may be provided to encourage generators when operating as synchronous condenser.

It was agreed in previous OCC meetings that states shall also develop MVAr vs voltage plots for generators under their jurisdiction. This would also help to improve telemetry of MVAr data and eventually, more reliable MVAr vs voltage plots will be available and the generators can be instructed accordingly.

All generating stations were requested to resolve any issues related to telemetry and make sure that MVAr absorption is as per grid requirement and capability curve of machine.

Numerous tripping have been reported related to RE generation in recent past suggesting possible non-compliance by RE generators. The details of these events are attached as Annexure-IV of agenda. As already discussed in TCC/NRPC meeting, subgroup formed at NRPC level to look after RE integration may immediately take up the issues at their level. Major areas for discussion include:

- Operation of solar plants in voltage control mode as per grid requirements
- Reactive power performance (absorption/generation) of solar plants during day & night time
- Harmonisation of settings among different solar plants including protection settings at lower voltage levels (within plant) to avoid unintended disconnection/ generation reduction
- LVRT/HVRT compliance in real-time grid events

- Installation of adequate reactive compensation before project commissioning stage as per CEA regulations.

In the meeting, it was discussed that separate sub-group meeting was called by NRPC to discuss all these issues and several actions have also been finalized. It was discussed that a working group has been constituted by Member (GO&D), CEA and this group would be submitting its recommendations shortly. As an interim measure, these recommendations may be implemented in NR.

SE(O) NRPC stated that in the sub-group meeting, it was discussed that there is no clear-cut guideline for operation of RE plants. It was discussed that NLDC in consultation with RLDCs may prepare Operating procedure for RE generators, till Regulations are amended and for this NRLDC may coordinate with NLDC. Moreover, draft Operating procedure for RE generators can also be discussed at NPC level.

NRLDC representative stated from next OCC meeting, as discussed in sub-group meeting, issues related to RE generator such as reactive power performance and grid standard non-compliance would be discussed from next meeting. These specific generators would be called from next OCC meeting by NRPC turn-wise.

22. TTC/ATC of state control areas for winter 2021-22

In the meeting, it was discussed that most of the NR states except J&K U/T and Ladakh U/T and Chandigarh are sharing basecase and ATC/TTC assessment with NRLDC. SLDCs were once again requested to go through the tentative ATC/TTC limits for December 2021 (Annexure-V of agenda) and provide comments. However, ATC/TTC assessment has only been received only from HP so far. Rajasthan had shared ATC/TTC calculations with NRLDC on 22.10.2021. On 28.10.2021, NRLDC has shared their observations on basecase as well as simulation studies carried out by Rajasthan. If no comments are received, these limits will be assumed confirmed and uploaded on NLDC website. SLDCs were also requested to upload the limits for winter 2021-22 in their respective websites.

Punjab
Punjab SLDC was asked to ensure sufficient intrastate generation on bar during winter months, which would help in providing the required MVAR absorption to limit high voltages during winter months

UP
SPS for Sohawal and Lucknow to be expedited.

Rajasthan
Rajasthan had shared ATC/TTC calculations with NRLDC on 22.10.2021. On 28.10.2021, NRLDC has shared their observations on basecase as well as simulation studies carried out by Rajasthan.
Rajasthan was requested to share the revised simulation studies with NRLDC alongwith details of bus-split, other operational changes in system.
Rajasthan SLDC was asked to take up the matter for implementation of SPS at Jodhpur and other stations with STU and ensure loading below N-1 contingency limit at constrained 400/220kV ICTs.

Delhi
ATC is not being uploaded in website, only violation of ATC is being shown.

Delhi SLDC to implement SPS at Mundka and Bamnoli to save supercritical loads under N-1 contingency of one ICT.
Delhi representative stated that ATC limits would be uploaded on website from next month onwards and SPS at Mundka would be implemented before next summer season.

Haryana
Haryana SLDC was once again requested to expedite implementation of SPS at 400/220kV Deepalpur and Kurukshetra (PG) to enhance their ATC/TTC limits at the earliest.

HP
HP has started sharing its ATC assessment since last 3 months in consultation with NRLDC. ***It was discussed that mostly intrastate constraints were highlighted by HP and the studies were done for lesser import values. HP was advised to assess possible tie-line/ICT constraints with import close to real-time values.***

Uttarakhand
Uttarakhand has also shared its ATC assessment with NRLDC for winter 2021-22.

J&K
Not assessing its ATC. J&K representatives had intimated during 47th TCC and 49th NRPC meeting that they would be sharing ATC/TTC assessment with NRLDC from October 2021, however the same is still awaited.

As discussed in last several OCC meetings, all SLDCs need to furnish ATC/TTC details of their control area at respective SLDC websites. Now, it is being observed that most of the SLDCs except Uttarakhand, J&K and Delhi (real-time violation available) are uploading ATC/TTC limits on their websites.

SLDC	Link for ATC on website
UP	https://www.upsldc.org/documents/20182/0/ttc_atc_24-11-16/4c79978e-35f2-4aef-8c0f-7f30d878dbde
Punjab	https://www.punjabsldc.org/downloads/ATC-TTC0321.pdf
Haryana	https://hvpn.org.in/#/atcttc
Delhi	NA (real-time violation reporting available)
Rajasthan	https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
HP	https://hpsldc.com/mrm_category/ttc-atc-report/
Uttarakhand	NA
J&K and Ladakh U/T	NA

Plots depicting N-1 non-compliance at several 400/220kV ICTs is attached as Annexure-VI of agenda. It was again discussed that SLDCs may ensure that loading of ICTs and lines are below their N-1 contingency limits.

As discussed during last meeting, since from October/ November, demand of most of the NR states starts changing, it is requested that the revised ATC/TTC limits for winter 2021 alongwith anticipated generation scenario may be timely shared with NRLDC***.***

All SLDCs were requested to share basecase as well as ATC/TTC assessment with NRLDC/NRPC on monthly basis as well as upload on their websites. Basecase and ATC assessment shall be shared with NRLDC by the 10th of every month. NRLDC will incorporate these changes in All India basecase and share the updated basecase as well as observations on ATC/TTC by the 20th of every month. Monthly/ quarterly online meetings will also be organized involving reliability coordinators of SLDCs/RLDC to discuss reliability issues and measures required. It was also requested that net scheduled power requested by states is within their ATC limits.

23. Grid operation related issues

(i) Long outage of transmission elements/ generating units

Reasons and revival date for elements under long outage are being discussed regularly in OCC meetings. Status of these elements is attached as **Annexure-B.II**. All utilities were requested to make it a practice to update status of elements under long outage in the NRLDC outage software portal. Utilities are requested to take necessary actions to revive elements which are under long outage and also intimate expected revival dates.

All constituents were requested to obtain necessary CEA Clearance before putting up-request for charging of the elements wherever any additions/alterations of any electrical installations is involved. As per Clause no. 43, CEA(Measures relating to safety and Electric Supply) Regulations 2010, it is mandatory to obtain the approval of CEA electrical inspector for any additions/alterations of any electrical installation.

"*The owner of any installation of voltage exceeding 650 V who makes any addition or alteration to his installation shall not connect to the supply his apparatus or electric supply lines., comprising the said alterations or additions unless and until such alteration or addition has been approved in writing by the Electrical Inspector".*

In 189 OCC meeting, after detailed deliberation on above, it was decided that all constituents should obtain necessary CEA Clearance before putting up request for charging of the elements as per the CEA regulation.

After issuance of provisional approval for charging (format-IV) of any transmission element by RLDC, **utilities shall ensure charging of elements within one week from the date of issuing the approval.**

It has been observed in few cases that after approval for first time charging, the elements were charged only through main bay without charging tie bay/ dia. This results in reduction of reliability of the transmission element. Hence, **all utilities are requested to apply for charging an element only after both main tie bays are ready.** Trial operation certificates will be processed only after charging of the elements with complete dia.

(ii) Information about new transmission elements/ generating units to be commissioned in next 45 days

All utilities were requested to share the information about transmission elements/ generating units which are expected to be first time charged in the next 45 days.

(iii) MVAR flow from underlying network to 400kV grid:

NRLDC representative stated that recently, it is being observed that there is MVAR flow from 220kV side to 400kV side due to high MVAR generation by lightly loaded lines. This leads to very high voltages in 400kV and 765kV grid and to manage these, even a large number of lines are being opened on regular basis. Based on SCADA data (Oct-2021) available at NRLDC (Annexure-VIII of agenda), the list of several such 400/220kV substations is shown below:

S. No.	Location	Substation Name
1	Punjab	Malerkotla
2		Makhu
3		Muktsar
4		Nakodar
5	Delhi	Mandola
6		Maharanibagh
7		Bamnauli
8		Mundka
9		Bawana
10	Haryana	Kirori
11		Manesar
12	Rajasthan	Jaipur South
13		Heerapura
14	UP	Kanpur (PG)
15		Muradnagar

Utilities were requested to analyse the reasons for MVAR flows from 220kV side to 400kV side and share their plan to mitigate this to minimize high voltages in the grid. Rajasthan, Delhi, Haryana and Punjab were requested to share action plan for high voltage management during winter 2021-22.

(iv) Modification of Anpara-Unnao SPS with commissioning of 765kV AnparaD-Unnao

NRLDC representative stated that 765kV AnparaD-Unnao line was scheduled for commissioning in 2012 to facilitate evacuation from Anpara-D. Line was successfully charged on 01.11.2021 and has helped in providing one additional path for evacuation from the complex. SPS was approved in 162 OCC meeting regarding SPS in Anpara-Unnao complex .

However, with the commissioning of 765kV AnparaD-Unnao, there is need to revise the SPS conditions for different possible contingencies. Study carried out by POSOCO in this regard is attached as Annexure-IX of agenda**.** Study suggest no major issue with outage of one of either 765kV AnparaC-Unnao or AnparaD-Unnao.

UP SLDC was asked to study and discuss the possible revisions in SPS of Anpara-Unnao complex with the commissioning of 765kV AnparaD-Unnao.

(v) Order of Commission for Air Quality Management in National Capital Region and Adjoining Areas

The Commission for Air Quality Management in National Capital Region and Adjoining Areas has issued a slew of directions to improve the air quality in Delhi and surrounding areas. Of the 11 thermal power plants located within 300 km radius of Delhi, only five should be allowed to schedule their operations while the rest have to remain inoperative at least till November 30, 2021.

The five plants which have been allowed operate are NTPC, Jhajjar; Mahatma Gandhi TPS, CLP Jhajjar; Panipat TPS, HPGCL; Nabha Power Ltd. TPS Rajpura and Talwandi Sabo TPS, Mansa.

OCC noted the information.

(vi) SPS Implementation at Bhadla (PG)

Following is status of SPS implementation work being executed by POWERGRID.

181 OCC: QR finalised, tender may be floated in next week

183 OCC: QR approved, tender documents being prepared

186 OCC: Tendering stage, likely to be awarded in Sep'2021

187 OCC meeting, POWERGRID representative stated that work is still in tendering stage and the Bid opening is scheduled on 23.09.2021.

189 OCC meeting, POWERGRID representative stated that one bid has been received for the work. However, it is new party so evaluation is under process. On enquiry from NRLDC representative, it was stated that order is likely to be placed before next OCC meeting. OCC once again expressed concern on the slow progress of the work.

(vii) Calculation of Drawal points based on SLDC end data

NRLDC representative stated that as discussed in the 6th TeST meeting all SLDCs shall maintain its own drawal calculation (alternate calculation based on the SLDC drawal points) for proper monitoring and SLDC also shall be responsible for calculation of its own drawl based on their drawal points at their respective feeders/ICTS. SLDC shall use its own calculated value of monitoring real-time drawal from the grid along with ISTS drawal to ensure the correctness and corrective measures shall be taken accordingly. UP and Delhi are using their end calculation as primary calculation for monitoring of drawal whereas Rajasthan is entirely dependent on STU data. However, Punjab, Haryana, Jammu and Kashmir, Uttarakhand are dependent on RLDC end drawal values. All concerned are requested to please compute drawal values at SLDC end also, so that same can be verified with NRLDC end value and any discrepancy can be rectified immediately.

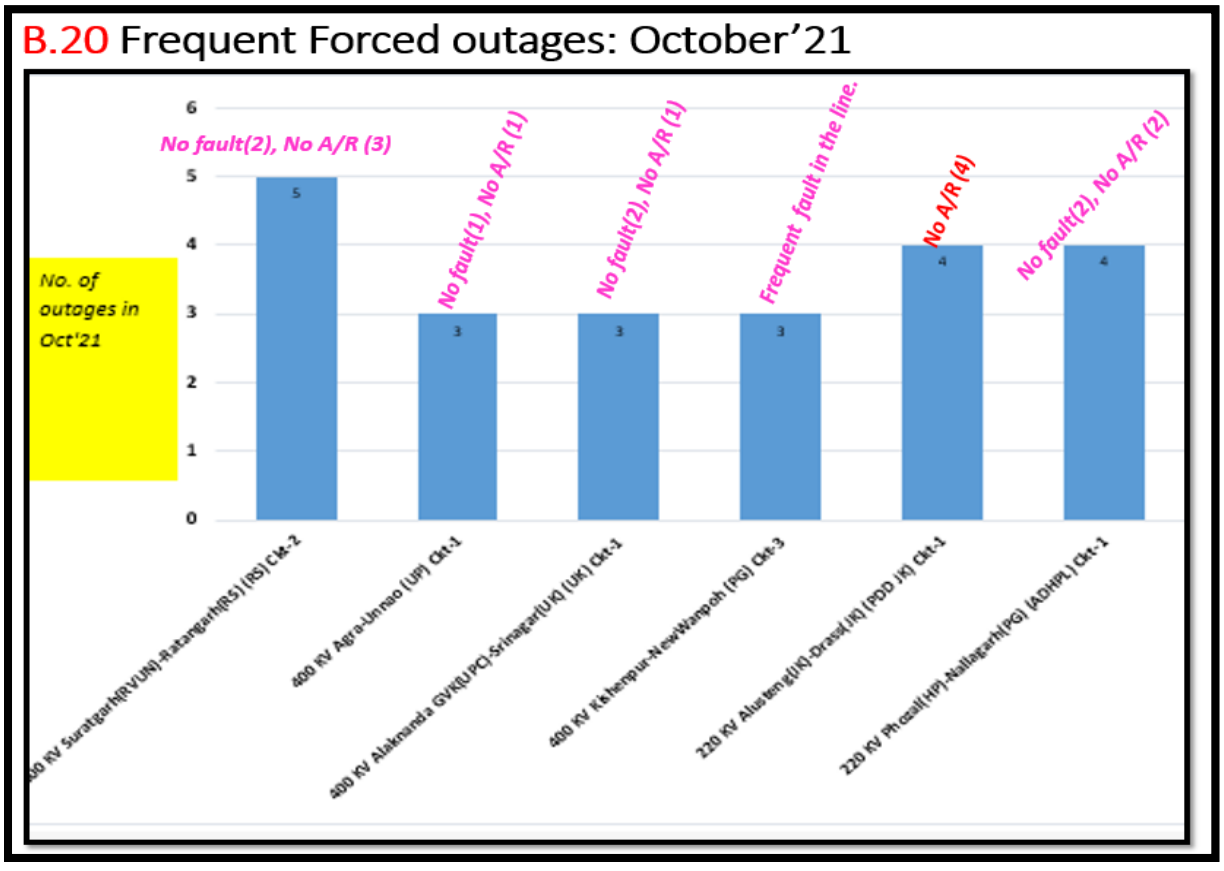
In 188th OCC meeting, MS NRPC expressed concern and asked all the states which are only dependent on RLDC end data to take necessary actions and compute drawl values at SLDC end also. It was also suggested that the agenda be continued in OCC meeting till resolution of issue by all states.

In 189th OCC meeting, MS NRPC stated that NRLDC may request all SLDCs to confirm the status via email. Based on the feedback received, issue may be discussed in next OCC meeting.

24. Frequent forced outages of transmission elements in the month of Oct'21:

The following transmission elements were frequently under forced outages during the month of **Oct'21**:

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-2	5	Rajasthan
2	400 KV Agra-Unnao (UP) Ckt-1	3	UP
3	400 KV Alaknanda GVK(UPC)-Srinagar(UK) (UK) Ckt-1	3	UP/Uttarakhand
4	400 KV Kishenpur-NewWanpoh (PG) Ckt-3	3	POWERGRID
5	220 KV Alusteng(JK)-Drass(JK) (PDD JK) Ckt-1	4	J&K
6	220 KV Phozal(HP)-Nallagarh(PG) (ADHPL) Ckt-1	4	HP/POWERGRID/AD Hydro



The complete details are attached at **Annexure-B. II of the Agenda.**

Discussion during the meeting:

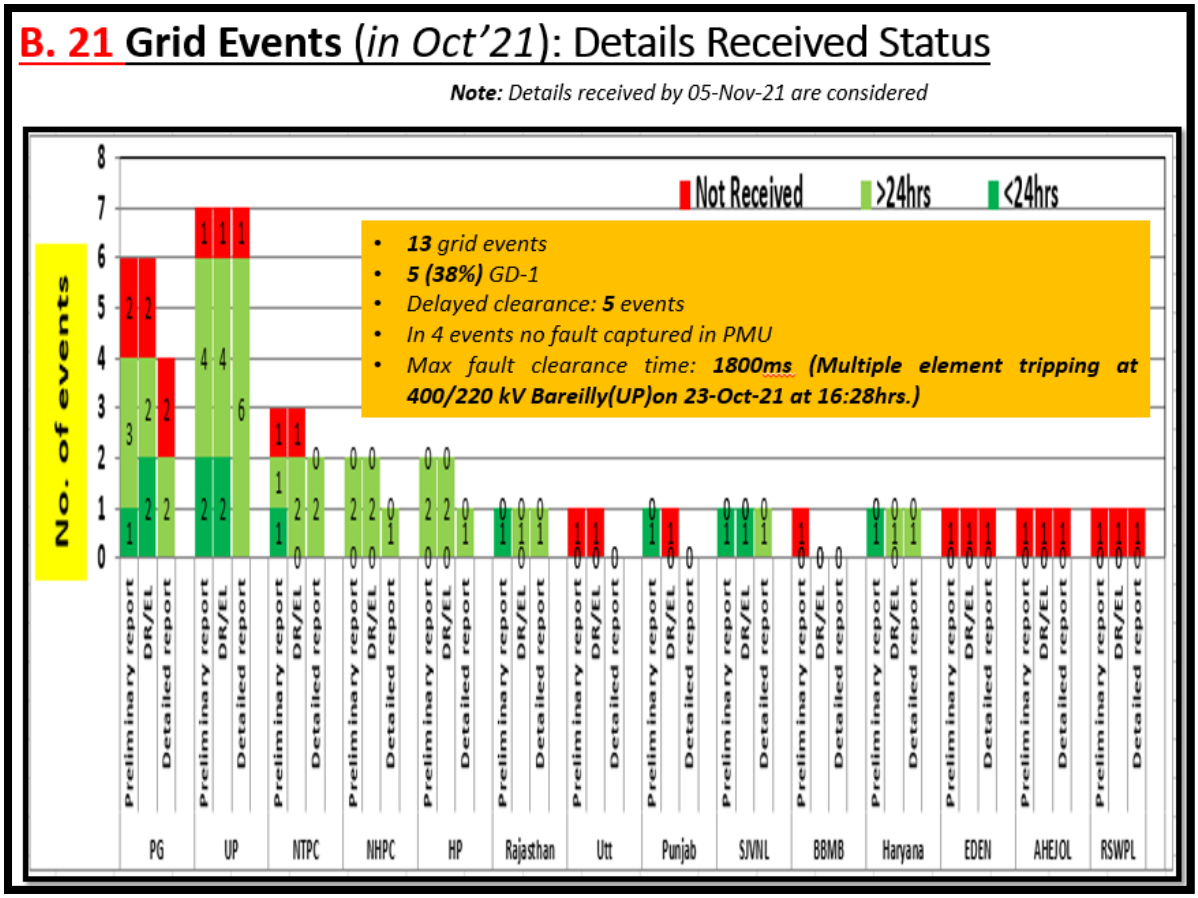
- **400 KV Suratgarh (RVUN)-Ratangarh (RS) (RS) Ckt-2:** *Rajasthan representative informed that multiple times tripping occurred in this line due to transient fault. He further informed that A/R was in off condition in this line however, the same is expected to be back in operation within 7 days. NRLDC representative suggested to ensure healthiness/ in service of A/R in all 220 kV and above transmission lines in compliance to CEA Grid Standard. Rajasthan representative agreed for the same.*
- **400 KV Agra-Unnao (UP) Ckt-1:** *UPPTCL representative informed that tripping on 18th Oct, 2021 occurred from Unnao end only during relay testing work. He further informed that tripping on 28th Oct, 2021 occurred due to R-Y phase bushing damage on line reactor at Agra end and tripping on 31st Oct, 2021 occurred on persistent fault in transmission line.*
- **400 KV Alaknanda GVK (UPC)-Srinagar (UK) (UK) Ckt-1:** *UPPTCL representative informed that tripping on this line occurred due to DT sent from Alaknanda end without any fault. He further informed that the issue was resolved on 17th Oct, 2021 after replacing the cable at Alaknanda end.*
- **400 KV Kishenpur-NewWanpoh (PG) Ckt-3:** *POWERGRID representative informed that tripping on 23rd Oct, 2021 occurred during disturbance (inclement weather) in this area.*
- **220 KV Alusteng (JK)-Drass (JK) (PDD JK) Ckt-1:** *No comment was given by POWERGRID/J&K representative. NRLDC said that it is a very important link for UT of the Ladakh and healthiness of the same must be ensured for reliable supply.*

NRLDC representative emphasized that A/R (auto reclosure) issue was found in many of these tripping. He further sensitized all the utilities to ensure healthiness/ in service of A/R in 220 kV and above transmission lines in compliance to CEA Grid Standard. He further informed that most of the tripping are transient in nature but due to non-operation of A/R, it resulted into tripping of the transmission element and it further reduce the reliability of the grid. All the utilities shall endeavour to keep auto reclosure in service and in healthy condition for 220 kV and above voltage level transmission line.

Frequent outages of such elements affect the reliability and security of the grid. Hence, utilities are once again requested to look into such frequent outages and share the remedial measures taken/being taken in this respect.

25. Multiple element tripping events in Northern region in the month of Oct'21:

A total of **13** grid events occurred in the month of Oct'21 of which **5** are of GD-1 category. The preliminary report of all the events have been issued from NRLDC. A list of all these events along with the status of details received by 05-November-2021 is attached at **Annexure-B.III of the Agenda.**



Further, despite persistent discussions/follow-up in various OCC/PSC meetings, the compliance of the regulations is still much below the desired level.

Maximum Fault Duration is **1800ms** in the event of multiple element tripping at 400/220 kV Bareilly (UP) on 23-Oct-21 at 16:28hrs.)

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **5** events out of **13** grid events occurred in the month. In 4 number of events, fault signature couldn't be captured from PMU data.

NRLDC representative stated that in the event of tripping at 400/220 kV Bareilly (UP) on 23-Oct-21 at 16:28hrs, delayed clearance of around 1800ms is observed in clearing the fault. He further informed that as per report received from SLDC UP jumper of 220 KV Pantnagar (UK)-Bareilly (UP) (UP) Ckt-1 snapped and created bus fault. As bus bar protection is not in service at 220kV Bareilly(UP), 220kV feeders to Dhauliganga, Pithoragarh, Pantnagar, Shahjahanpur, CB Ganj2 ckt-1 & ckt-2 all tripped in Z-4 and 220kV feeders to Dohna ckt-1 & ckt 2, Pilibhit Ckt-1 & ckt2 tripped in Zone 2 because these feeders didn't trip in Z-4 from Bareilly end. UP representative informed that delayed of 1800ms was due to tripping of ICTs on earth fault. He further informed that Bus bar protection was not operational at 400/220 kV Bareilly (UP) which is expected to be in service soon and they are working on the issue of installing new Bus bar protection as capacity of old bus bar protection got exhausted due to large number of feeders at 400/220 kV Bareilly (UP).

NRLDC representative stated that even in absence of Bus bar protection, all lines at 400/220 kV Bareilly (UP) should trip in Z-4 and clear the fault. UP representative informed that some lines did not trip in Z-4 from 400/220 kV Bareilly (UP) end and tripped in Z-2 from other end. He further informed that they are investigating the reason of the same and will be informed to NRLDC/NRPC office after detailed investigation.

All the utilities shall endeavor to keep Bus Bar protection in service and in healthy condition in each substation. In case of any Bus bar protection out of service, utilities are requested to inform their respective system operator and also furnish periodic healthiness report for Bus Bar protection.

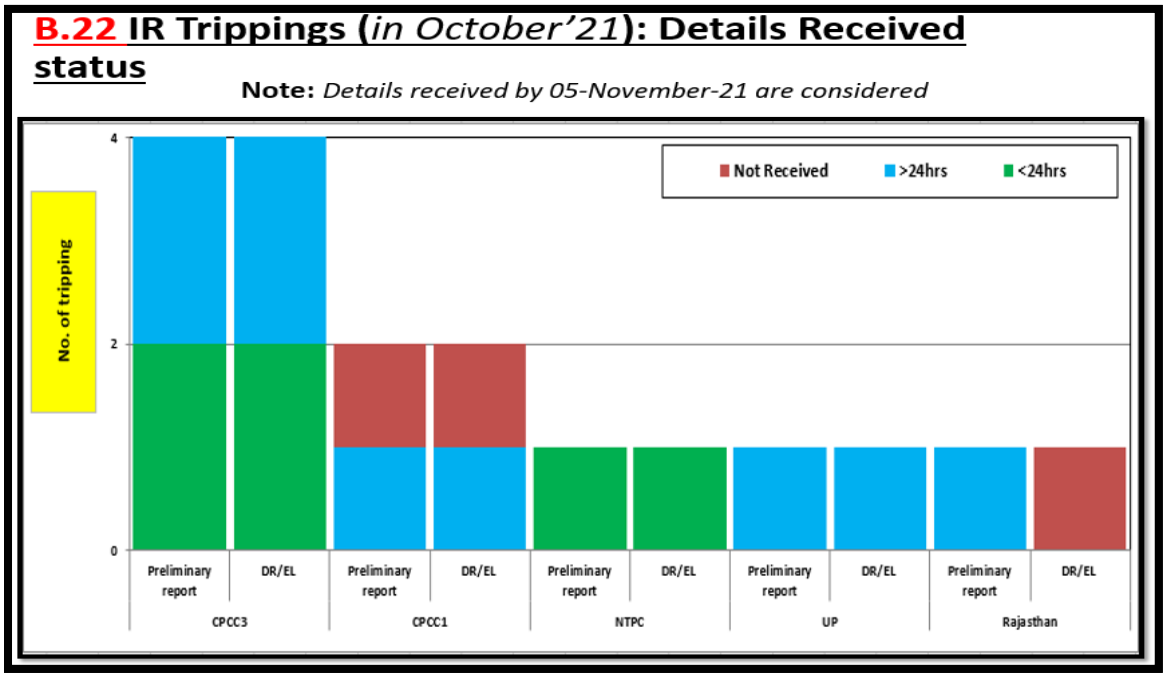
NRLDC representative raised concern about poor status of report updation by POWERGRID on the tripping portal. He further stated that timely report submission is an important activity and all constituents are advised to take this on priority and upload the reports.

OCC suggested all the NR constituents to update the information on tripping portal developed by NRLDC. All the constituents agreed to take proactive actions in this regard to minimize the tripping.

Members were asked to take expeditious actions to avoid such tripping in future and discuss the same. Moreover, utilities may impress upon all concerned for providing the Preliminary Report, DR/EL & Detailed Report of the events in line with the regulations. Members agreed to take action in this regard.

26. Details of tripping of Inter-Regional lines from Northern Region for Oct'21:

A total of 9 inter-regional lines tripping occurred in the month of Oct'21. The list is attached at **Annexure-B. IV of the Agenda.**



Out of 9 number of tripping's, 2 tripping incidents are related to HVDC system. The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event is in violation of various regulations. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than mandated by CEA (Grid Standard) Regulations.

Members may please note and advise the concerned for taking corrective action as mentioned below to avoid such tripping as well as timely submission of the information.

- *Healthiness of all the main and backup protection at each substation shall be ensured.*
- *Healthiness of bus bar protection at each substation to be ensured.*
- *PLCC carrier communication protection to be checked and corrected.*
- *Carry out periodic testing of relays*
- *In case of any event, Exact sequence of events in view of cause of event; protection operation/non-operation; opening, closing of breaker, isolator; relevant alarms and any other relevant detail needs to be shared with NRLDC/NRPC.*
- *Numerical protection, Disturbance Recorder and Station event logger (SAS based or standalone event logger) are very important for detailed analysis of any tripping and helps in preventing those repetitive tripping. CEA technical standard of construction also mandate all these requirements for 220 kV and above voltage level. Utilities shall take corrective action to ensure healthiness of DR/EL, time synchronization of DR/EL and also ensure numerical protection in the system as per technical standard.*

27. Status of submission of DR/EL and tripping report of utilities for the month of Oct'21.

NRLDC representative informed the current status (as on 05th November 2021) of DR/EL and tripping report of utilities for the month of October 2021. Consolidated information is tabulated below:

S. No.	Utility	1rt Oct 2021 - 31rt Oct 2021												
		Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) or informed	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) or informed by	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) or informed by	Tripping Report (Not Received)
			Value	%	Value		%	Value		%	Value		%
1	ACME	1	1	100	1	0	100	1	0	100	1	0	100
2	ADHYDRO	3	0	0	0	0	0	0	0	0	0	0	0
3	AHEJOL	2	2	100	2	0	100	2	0	100	2	0	100
4	ANTA-NT	8	1	13	1	2	17	1	3	20	1	0	13
5	APTFL	1	1	100	1	0	100	1	0	100	1	0	100
6	AURAIYA-NT	5	2	40	2	0	40	3	0	60	1	0	20
7	BAIRASUIL-NH	4	0	0	0	0	0	0	0	0	0	0	0
8	BBMB	14	4	29	6	5	67	6	5	67	5	0	36
9	BUDHIL	3	3	100	2	0	67	2	0	67	2	0	67
10	CHAMERA-III-NH	2	0	0	0	1	0	0	1	0	0	0	0
11	CHAMERA-II-NH	2	0	0	0	0	0	0	0	0	0	0	0
12	CPCC1	45	25	56	24	5	60	25	7	66	25	4	61
13	CPCC2	53	2	4	9	2	18	2	3	4	25	0	47
14	CPCC3	41	10	24	10	6	29	9	5	25	10	2	26
15	DADRI-NT	1	1	100	1	0	100	1	0	100	1	0	100
16	DHAULIGANGA-NH	2	0	0	0	1	0	0	1	0	0	0	0
17	DULHASTI-NH	1	0	0	0	0	0	0	0	0	0	0	0
18	EDEN(ERCPL)	1	1	100	1	0	100	1	0	100	1	0	100
19	KISHENGANGA-NH	1	0	0	0	1	0	0	1	0	0	0	0
20	KOLDAM-NT	2	2	100	2	0	100	2	0	100	2	0	100
21	NAPP	1	0	0	0	0	0	0	0	0	0	0	0
22	NJPC	2	1	50	1	0	50	1	0	50	2	0	100
23	RAMPUR	4	0	0	0	0	0	0	0	0	0	0	0
24	RAPPA	6	3	50	6	0	100	5	0	83	6	0	100
25	RAPPB	3	2	67	2	0	67	2	0	67	2	0	67
26	RENEW SUN WAVES(RSW	1	1	100	1	0	100	1	0	100	1	0	100
27	RSEJ3PL	1	1	100	1	0	100	1	0	100	1	0	100
28	SALAL-NH	2	0	0	0	1	0	0	2	0	0	0	0
29	SAURYA	2	2	100	2	0	100	2	0	100	2	0	100
30	SBSRPC-11	2	2	100	2	0	100	2	0	100	2	0	100
31	SEWA-2-NH	1	0	0	0	0	0	0	0	0	0	0	0
32	SLDC-CHD	1	1	100	1	0	100	1	0	100	1	0	100
33	SLDC-DV	14	1	7	7	1	54	7	1	54	7	0	50
34	SLDC-HP	15	0	0	0	7	0	0	7	0	0	1	0
35	SLDC-HR	15	3	20	5	2	33	5	2	33	3	0	20
36	SLDC-JK	19	5	26	5	14	100	5	14	100	8	5	57
37	SLDC-PS	21	4	19	11	4	65	11	4	65	19	0	90
38	SLDC-RS	49	0	0	28	0	57	28	0	57	27	0	55
39	SLDC-UK	19	14	74	13	1	72	19	0	100	16	0	84
40	SLDC-UP	130	25	19	32	21	29	35	27	34	29	1	22
41	INDIGRID	3	0	0	0	0	0	0	0	0	3	0	100
42	TANAKPUR-NH	2	2	100	2	0	100	2	0	100	2	0	100
43	TANDA-NT	1	0	0	0	0	0	0	1	0	0	0	0
44	UNCHAHAR-NT	4	1	25	0	0	0	0	0	0	0	0	0
45	URI-I-NH	1	0	0	0	0	0	0	0	0	0	0	0

It is to be noted that as per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement. Also, it is observed that reporting status has been improved from POWERGRID NR2, Delhi, HP, Rajasthan and Haryana in Oct, 2021 compared to the previous month.

All the members were once again requested to provide timely details of the grid events, detailed report in desired format along with remedial measure report. DR/EL of all the tripping needs to be uploaded on Web Based Tripping Monitoring System "http://103.7.128.184/Account/Login.aspx" within 24 hours of the events as per IEGC clause 5.2.r and clause 15.3 of CEA grid standard.

Members agreed for the same.

28. Frequency response characteristic:

One FRC based event has occurred in the month of **Oct-2021**. Description of the event is as given below:

Table:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	End Frequency (in Hz)	*Δf*
1	21-Oct-21	14:32hrs	At 13:47 Hrs Dated 21st Oct 2021,400KV Teesta III-Kishanganj tripped on Y-B fault, further 400KV-Teesta III-Dikchu line tripped at 14:32 Hrs on B-N fault causing loss of evacuation path from Teesta-III and resulted in Generation loss of 1086 MW at Teesta-III.	49.87	49.85	-0.02

The Hon'ble CERC approved procedure has already been shared with all concerned during previous OCC meetings. FRC observed for each state control area on the basis of SCADA data for the event is tabulated below:

States	21-Oct-21 event	Remarks
PUNJAB	240%	
HARYANA	188%	
RAJASTHAN	-32%	
DELHI	181%	
UTTAR PRADESH	-33%	
UTTARAKHAND	-49%	
CHANDIGARH	-56%	
HIMACHAL PRADESH	-66%	
JAMMU & KASHMIR	119%	
NR	35%	

FRC calculation of ISGS stations based on NRLDC SCADA data is tabulated below:

Generator	21-Oct-21 event	Generator	21-Oct-21 event
Singrauli TPS	-111%	Salal HEP	-10%
Rihand-1 TPS	-139%	Tanakpur HEP	No generation
Rihand-2 TPS	76%	Uri-1 HEP	50%
Rihand-3 TPS	-119%	Uri-2 HEP	73%
Dadri-1 TPS	-24%	Dhauliganga HEP	Suspected SCADA data
Dadri -2 TPS	-31%	Dulhasti HEP	113%
Unchahar TPS	No generation	Sewa-II HEP	No generation
Unchahar stg-4 TPS	372%	Parbati-3 HEP	No generation
Jhajjar TPS	92%	Jhakri HEP	1%
Dadri GPS	-52%	Rampur HEP	Suspected SCADA data
Anta GPS	-18%	Tehri HEP	37%
Auraiya GPS	36%	Koteswar HEP	256%
Narora APS	45%	Karcham HEP	No generation
RAPS-B	42%	Malana-2 HEP	Suspected SCADA data
RAPS-C	-68%	Budhil HEP	No generation
Chamera-1 HEP	No generation	Bhakra HEP	2%
Chamera-2 HEP	No generation	Dehar HEP	No generation
Chamera-3 HEP	No generation	Pong HEP	No generation
Bairasiul HEP	Suspected SCADA data	Koldam HEP	No generation
		AD Hydro HEP	No generation

FRC calculation of major state generators based on NRLDC SCADA data is tabulated below:

Generator	21-Oct-21 event	Generator	21-Oct-21 event
PUNJAB		UP	
Ropar TPS	No generation	Obra TPS	Suspected SCADA data
L.Mohabbat TPS	No generation	Harduaganj TPS	No generation
Rajpura TPS	248%	Paricha TPS	No generation
T.Sabo TPS	405%	Rosa TPS	101%
Goindwal Sahib TPS	654%	Anpara TPS	17%
Ranjit Sagar HEP	-62%	Anpara C TPS	Suspected SCADA data
Anandpur Sahib HE	No generation	Anpara D TPS	2%
HARYANA		Bara TPS	13%
Panipat TPS	Suspected SCADA data	Lalitpur TPS	14%
Khedar TPS	Suspected SCADA data	Meja TPS	-116%
Yamuna Nagar TPS	No generation	Vishnuprayag HEP	Suspected SCADA data
CLP Jhajjar TPS	-10%	Alaknanda HEP	-15%
Faridabad GPS	No generation	Rihand HEP	-5%
RAJASTHAN		Obra HEP	-55%
Kota TPS	55%	UTTARAKHAND	
Suratgarh TPS	10%	Gamma Infra GPS	No generation
Kalisindh TPS	Suspected SCADA data	Shravanti GPS	No generation
Chhabra TPS	No generation	Ramganga HEP	No generation
Chhabra stg-2 TPS	Suspected SCADA data	Chibra HEP	Suspected SCADA data
Kawai TPS	-28%	Khodri HEP	-133%
Dholpur GPS	No generation	Chilla HEP	No generation
Mahi-1 HEP	Suspected SCADA data	HP	
Mahi-2 HEP	No generation	Baspa HEP	5%
RPS HEP	No generation	Malana HEP	No generation
JS HEP	-100%	Sainj HEP	-23%
DELHI		Larji HEP	16%
Badarpur TPS	No generation	Bhabha HEP	-38%
Bawana GPS	Suspected SCADA data	Giri HEP	-20%
Pragati GPS	75%	J&K	
		Baglihar-1&2 HEP	3%
		Lower Jhelum HEP	No generation

Status of Data received of FRC for the event at Teesta III on 21st Oct 2021:			
Data Received from		Data Not Received from	
UP	Singrauli NTPC	HP	Rihand NTPC
	NJHPC	UK	Dadri-1 TPS
	NHPC	J&K	Rampur HEP
	Tehri HEP	Punjab	APCPL Jhajjar
	Koteshwar HEP	BBMB	ADANI (Kawai)
	CTPP Chhabra	Haryana	Others
		Rajasthan	
		Delhi	

Primary Frequency Response by Generators (as per generator data) during Grid Event at Teesta III on 21st Oct 2021

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
1	**Dhauliganga HEP**	42.46	Unsatisfactory response
2	**N. Jhakri Unit 2**	34.04	Early die out of response
3	**Singrauli Unit 7**	307.73	Satisfactory response
4	**Anpara A & C**	0	Poor response (Field raw data not received)
5	**Obra B & H**	0	Poor response (Field raw data not received)
6	**Lalitpur**	14	Unsatisfactory response (Field raw data not received)
7	**Koteshwar HEP**	220.35	Satisfactory response (Field raw data not received)

In line with the decisions taken during various OCC meetings, the time and date of the FRC events were e-mailed to respective utilities***. Constituents may submit the FRC of their control areas for the above event and reason of poor response, if observed.***

FRC information has been received from NHPC, NJPC, Tehri, Singrauli, HP, Haryana & UP control area.

NRLDC representative informed that during the event good response has been observed from central hydro units like Jhakri. He further informed that units under UP control area like Anpara, Obra & Lalitpur units are showing poor/unsatisfactory response.

All the concerned utilities may please go through the details and share the detailed reply considering all the points and supporting plant wise data to check the FRC response of the generator within week time to RPC/ RLDC.

29. Status of PSS tuning/ re-tuning and Step Response Test of generator

In 180th, 181st, 182nd, 183rd, 184th, 185th 186th, 187th & 188th OCC meeting, this point was discussed and Utilities were requested to submit the present status of PSS tuning/re-tuning and Step Response Test of their respective generators as per the below mentioned format.

S. No.	Name of the Generating Station	Date of last PSS tuning / re-tuning performed (in DD/MM/YYYY format)	Date of last Step Response Test performed (in DD/MM/YYYY format)	Report submitted to NRLDC (Yes/ No)	Remarks (if any)

Status report in above format updated till 08th November 2021 is attached as **Annexure-B.VI of the Agenda.**

It may be noted that except Anpara-A U-3, Parichha-C U-5, Baspa U-2, Unchahar-II U-1, Jhakri U-1&3, all units of Tehri and Koteshwar, and all units of Rampur HPS, PSS of other major units were last tuned several years ago. Therefore, once again all utilities are requested to arrange exciter step-response test or tuning of their respective units and submit the report of PSS tuning/ re-tuning/ Step Response Test through email to NRPC and NRLDC at seo-nrpc@nic.in and nrldcso2@gmail.com respectively.

NRLDC representative informed that all the units who have done Step response test before 2018 were requested to plan the exciter step-response test in Quarter 3 of 2021-22 and submit the tentative schedule of step-response test on the units with NRPC/ NRLDC. He further informed that till date Schedule has been received from Rajasthan and UP Control area. He further requested that members may kindly Accord due priority in this regard and update about their

future plan for PSS tuning by 30th November, 2021 as there is no progress despite including this agenda in every OCC meeting.

Members agreed for the same.

30. Mock black start exercises in NR:

As per Indian Electricity Grid Code (IEGC) clause 5.8(b) "Mock trial runs of the procedure for different sub-systems shall be carried out by the Users/ CTU/ STU at least once every six months under intimation to the RLDC".

Mock Black-start exercise of power stations therefore needs to be carried out in-order to ensure healthiness of black start facility. The winter months are off peak hydro period and therefore good time to carry out such exercises.

Therefore, the schedule of mock exercise dates for different hydro & Gas power station is proposed. The power stations may confirm and inform to all the concerned persons of control centre/ substations to facilitate the exercise.

The proposed schedule for the Mock Black start exercise is as follows:

Hydro Power Stations:

Date	Name of stations
26-Nov-21	* Uri-I, II HEP, Lower Jhelum HEP, Pampore GT's, Upper Sindh and Kishanganga
01-Dec-21	* Dhauliganga
04-Dec-21	Bairasiul
08-Dec-21	*Sewa-2
10-Dec-21	* N. Jhakri and Rampur
15-Dec-21	Karcham and Baspa
17-Dec-21	*Budhil
22-Dec-21	Parbati-3 and Sainj
24-Dec-21	*Salal
29-Dec-21	*Chamera-3
31-Dec-21	Koteshwar
05-Jan-22	Chamera-1 and Chamera-2
08-Jan-22	Malana-2, AD Hydro and Phozal
12-Jan-22	Tehri
15-Jan-22	Koldam

* Mock Black start exercise not carried out during Year 2020-21

Mock Black start procedure circulated during last exercise/ previous year may be used. The unit selection may be changed from the one taken during last year exercise. Also **Constituents are requested to adhere to the finalized schedule of mock exercises during the season**.

Gas Power Stations:

Date	Name of stations
19-Jan-22	Anta GPS
21-Jan-22	*Auraiya GPS
28-Jan-22	*Dadri GPS

As informed by Bawana GPS, it does not have black start capability.

SLDC's may also carryout mock black-start of station in their respective control area & inform the tentative dates to the OCC as well as outcome of these exercises. The proposed Hydro Power Stations to undergo the exercise are as follows:

S. NO.	Utility	Hydro Power Station	Installed Capacity(MW)
1	J&K	Baglihar	3x150
2		Baglihar stage-2	3x150
3		Lower Jhelum	3x35
4		Upper Sindh	2x11+3x35
5		Larji	3x42
6		Bhabha	3x40
7		Malana -I	2x43
8		Baspa	3x100
9	Punjab	Anandpur Sahib	4x33.5
10		Ranjit Sagar	4x150
11	Rajasthan	Mahi-I&II	2x25+2x45
12		Rana Pratap Sagar	4x43
13		Jawahar Sagar	3x33
14		Gandhi Sagar	5x23
15		Dholpur GPS	3x110
16		Ramgarh GPS	1x35.5+2x37.5+1x110
17	UP	Rihand	6x50
18		Obra	3x33
19 20		Vishnuprayag	4x100

21		Srinagar (Alaknanda)	4x82.5
	Uttarakhand	Gamma Infra	2x76+1x73
22		Shravanti	6x75
23		Ramganga	3x66
24		Chibro	4x60
25		Khodri	4x30
26		Chilla	4x36
27		Maneri Bhali-I&II	3x30+4x76
28	Delhi	IP Extn GTs	6x30+3x30
29		Pragati GPS	2x104.6+1x121.2
30		Rithala	3x36
31	Haryana	Faridabad GPS	2x137.75+1x156.07

During last winter, SLDCs had been requested to carry out mock drills and share their reports. However, the report of such exercises was not received except for Rihand Hydro in Uttar Pradesh. The information may please be shared by SLDCs and program for this year's mock black start exercises shall also be shared.

SLDCs shall submit the reports of black start exercise in their respective control area. SLDCs may also identify further generating stations/unit for black start exercise.

NHPC representative informed that schedule of mock black start exercise in their control area has been shared and the same is mentioned below

Status of Mock Black Start Exercise at NHPC Power Stations during 2021-22				
Sl. No.	Name of Power Station	Proposed by NRLDC during 189th OCC Meeting	Proposed by NHPC	Remarks
1	Dhauliganga	1-Dec-2021	10-Dec-2021	
2	Chamera-1	5-Jan-2022	After 25 Jan 2021	Considering the proposed complete s/d of CH-1 PS for HRT inspection w.e.f. 01st Dec. 2021, the mock black start exercise may be postponed and same may be scheduled after 25 Jan 2021

3	Chamera-2	5-Jan-2022	After 25 Jan 2021	-do-
4	Bairasiul	4-Dec.-2021	4-Dec.-2021	
5	Sewa-2	8-Dec.-2022	--	Mock Black start exercise is not possible as Power Station is under complete shutdown due to HRT repair works.
6	Uri-1	26-Nov-2021	26-Nov-2021	
7	Uri-2	26-Nov-2021	26-Nov-2021	
8	Kishanganga	26-Nov-2021		Integration of Mock black start exercise in SCADA system at Kishanganga power station yet to be done by BHEL (OEM). BHEL is being pursued for its expedition. Hence the Mock exercise at Kishanganga shall be possible only after completion of above by OEM.
9	Parbati-3	22-Dec-2021	22-Dec-2021	
10	Salal	24-Dec-2021	24-Dec-2021	
11	Chamera-3	29-Dec-2021	During March 2022	

NRLDC representative suggested to all the constituents to adhere with the planned schedule. State control area were again requested to conduct the mock black start exercise in their respective area. All utilities were requested to share the schedule of mock exercise within 15 days to NRPC/NRLDC.

31. Revision of document for Reactive Power Management & System Restoration Procedure (SRP) for Northern Region:

Reactive Power Management document for Northern region is due for revision. The last updated document link is as below: https://nrldc.in/download/nr-reactive-power-management-2021/

Document is password protected and password was already informed to all the NR constituents through letter dated 30th Dec 2020.

All the members agreed to share the details/ feedback.

NRLDC representative once again requested to all the utilities to prepare the internal document for utilities own use.

Utilities are requested to share the details latest by 20th December 2021.

System restoration procedure for Northern region is due for revision. The last updated document has already been shared with the constituents through letter dated 29th Jan 2021.Document is password protected and password was already informed to all the NR constituents through email.

Constituents were requested to go through the document and provide any modification/addition in respect of their system. SLDC/Generating utilities were requested to kindly update and share the restoration procedure in respect of their state/generating station. The updates may kindly be sent by 15th December 2020.

All the members agreed to share the details/ feedback.

Utilities are requested to share the details.

NRLDC representative once again requested to all the utilities to prepare the internal document for utilities own use.

*****

Follow up issues from previous OCC meetings

1	Sub-stations likely to be commissioned by next two years.	All the concerned states had been requested in past OCC meetings to submit the details of the downstream network associated specially with POWERGRID substations along with the action plan of their proposed / approved networks.	Status details of downstream networks mentioned in **Annexure-A.I.I**.
2	Progress of installing new capacitors and repair of defective capacitors	Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.	Data upto following months, received from various states / UTs: ◎ CHANDIGARH — Sep-2019 ◎ DELHI — Oct-2021 ◎ HARYANA — Apr-2021 ◎ HP — Mar-2021 ◎ J&K and LADAKH — Not Available ◎ PUNJAB — Aug-2021 ◎ RAJASTHAN — Oct-2021 ◎ UP — Sep-2021 ◎ UTTARAKHAND — Oct-2021 All States/UTs are requested to furnish updated status on monthly basis.
3	Healthiness of defence mechanism: Self-certification	Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that "All the UFRs are checked and found functional".	Data upto following months, received from various states / UTs: ◎ CHANDIGARH — Not Available ◎ DELHI — Sep-2021 ◎ HARYANA — Sep-2021 ◎ HP — Oct-2021 ◎ J&K and LADAKH — Not Available ◎ PUNJAB — Mar-2021 ◎ RAJASTHAN — Sep-2021 ◎ UP — Sep-2021 ◎ UTTARAKHAND — Mar-2021 ◎ BBMB — Sep-2021 All States/UTs are requested to furnish updated status on monthly basis.
4	Status of FGD installation vis-à-vis installation plan at identified TPS	List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed. Further, progress of FGD installation work on monthly basis is monitored in OCC meetings.	Status of the information submission (month) from states / utilities is as under: ◎ HARYANA — Feb-2021 ◎ PUNJAB — Sep-2021 ◎ RAJASTHAN — Oct-2021 ◎ UP — Sep-2021 ◎ NTPC — May-2021 FGD status details are enclosed as **Annexure-A.I.II**. All States/utilities are requested to furnish updated status of FGD installation progress on monthly basis.
5	Information about variable charges of all generating units in the Region	The variable charges detail for different generating units are available on the MERIT Order Portal.	All states/UTs are requested to submit daily data on MERIT Order Portal timely.

6	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVAr TCR	Anticipated commissioning: Dec' 2021 (delay due to pending supplies by GE)
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection. GIS Bay is already available. Work expected to be completed by Dec.21
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection. GIS Bay is already available. Work expected to be completed by Dec.21
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vii	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
viii	PUNJAB	Dhuri	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	400kV Reactors - LOA issued on dated. 17.08.2021 and date of completion of project is 18 months from the date of LOA. 220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA.
ix	PUNJAB	Nakodar	1x25 MVAr at 220 kV	220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA.
x	PTCUL	Kashipur	1x125 MVAR at 400 kV	Already submitted to PSDF. On hold due to policy decision
xi	RAJASTHAN	Akal	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment would be forwarded to NLDC, POSOCO. The target date is Mar' 22.
xii	RAJASTHAN	Bikaner	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment would be forwarded to NLDC, POSOCO. The target date is Mar' 22.
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment would be forwarded to NLDC, POSOCO. The target date is Mar' 22.

xiv	RAJASTHAN	Barmer & others	13x25 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Installment received on dt.19.02.21. Technical bid opened on 22.10.2021
xv	RAJASTHAN	Jodhpur	1x125 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Installment received on dt.19.02.21. Technical bid opened on 22.10.2021

Sl. No.	Substation	Downstream network bays	Commissioning status of ICTs / Bays	Planned 220 kV system	Revised Target	Remarks
1	Shahjahanpur, 2x315 MVA 400/220 kV	4 Nos. of 220 kV bays to be utilized	Commissioning of ICT Commissioning of Bays Jun/Sep'14	Shajahnapur-Azimpur D/C line		Connected to load on 28.07.2021
				LILO of 220kV Shajahanpur - Sitapur at Shajahanpur PG	Dec'21	Updated in 188th OCC
2	Hamirpur 400/220 kV 2x 315 MVA S/s (Augmentation by 3x105 MVA ICT)	2 nos. bays utilized under ISTS. Balance 6 nos to be utilized	Commissioning of ICT 1st -Dec'13 2nd - Mar'14 3rd - Mar'19 Commissioning of Bays 4 bays - Dec'13 2 bays - Mar'14 2 bays - Mar'19	220 kV D/C Hamirpur-Dehan line. Original schedule: Dec' 2020	Dec'21	Updated in 188th OCC
3	Sikar 400/220kV, 1x 315 MVA S/s	2 Nos. of 220 kV bays	Commissioned (date not available)	Not available	Dec'21	Work order was placed on dt. 13.04.2020 to M/s A to Z Ltd. Work started on dt. 4.12.2020. S/S-32/32, T/E-31/32 (T/E at 27 no. location was pending due to Rajasthan High Court stay), T/S- 7.62/8.122 km completed. Now the stay has been vacated and balance work started. Tentative date of completion of work / line charging is 31.12.2021.
4	Bhiwani 400/220kV S/s	6 nos. of 220kV bays	Commissioned (date not available)	220kV Bhiwani (PG) - Isherwal (HVPNL) D/c line	Mar'22	Delayed due to RoW issue
5	400/220kV Tughlakabad GIS	10Nos. of 220kV bays	Commissioned (date not available)	RK Puram – Tughlakabad (UG Cable) 220kv D/c line	Jul'22	PO for supply and ETC of D/C UG cable awarded.
				Masjid Mor – Tughlakabad 220kv D/c line	Mar'22	PO for supply and ETC of D/C UG cable awarded.
6	400/220kV Kala Amb GIS (TBCB)	6 Nos. of 220kV bays	Commissioned in Jul'2017	220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Dec'21	Details for utilizing remaining 4 bays is not available

FGD Status

Updated status of FGD related data submission

NTPC (16.06.2021)
MEJA Stage-I
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (22.11.2021)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (22.11.2021)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (14.10.2021)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Adani Power Ltd. (28.10.2021)
KAWAI TPS
Lalitpur Power Gen. Co. Ltd. (22.10.2021)
Lalitpur TPS
Lanco Anpara Power Ltd. (22.10.2021)
ANPARA-C TPS
Rosa Power Supply Company (22.10.2021)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (22.10.2021)
Prayagraj TPP
APCPL (17.08.2021)
INDIRA GANDHI STPP

Pending submissions

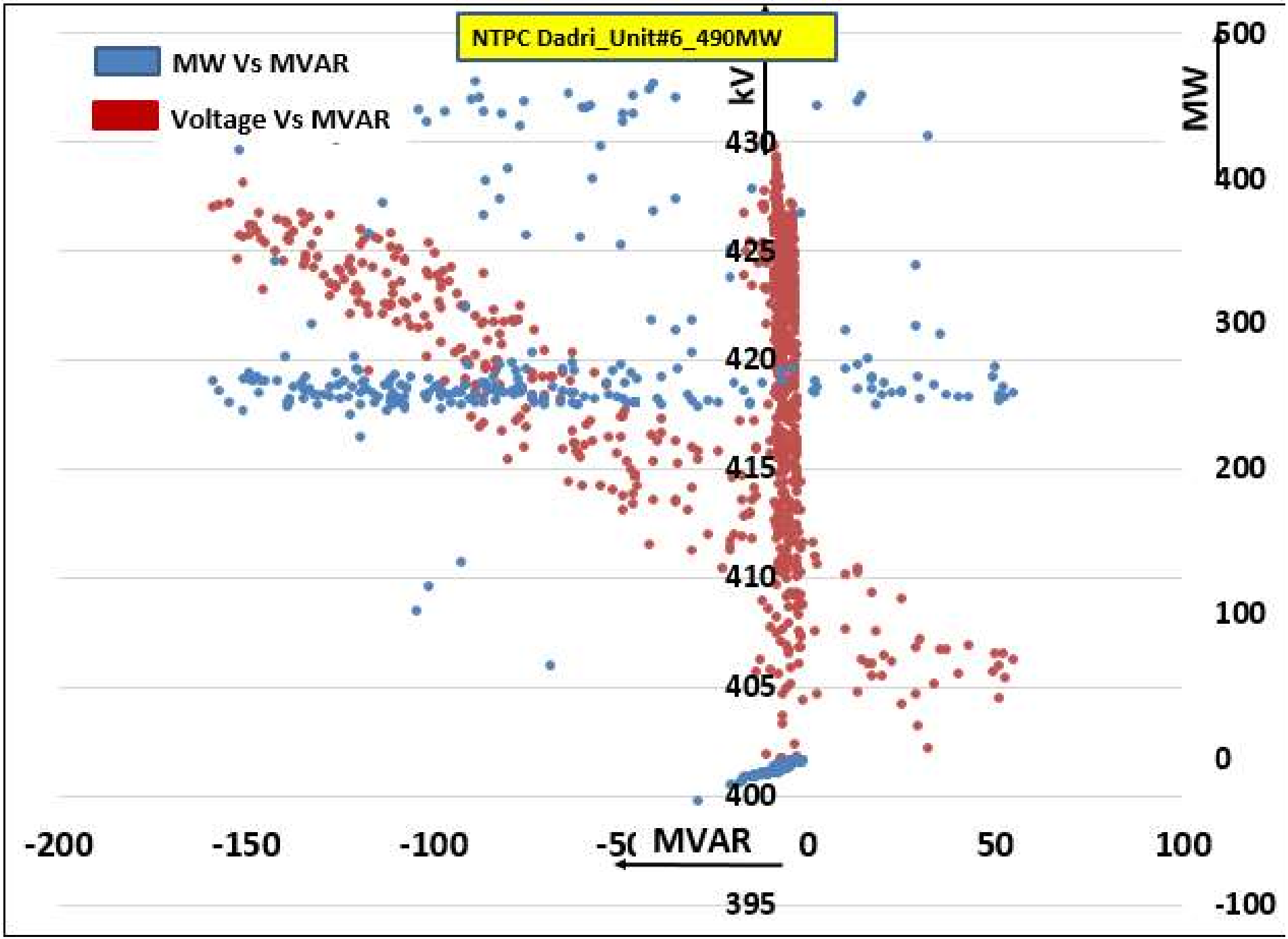
GVK Power Ltd.
GOINDWAL SAHIB
HGPCL
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS
NTPC
DADRI (NCTPP)
Talwandi Sabo Power Ltd.
TALWANDI SABO TPP
L&T Power Development Ltd.
Nabha TPP (Rajpura TPP)

Target Dates for FGD Commissioning (Utility-wise)

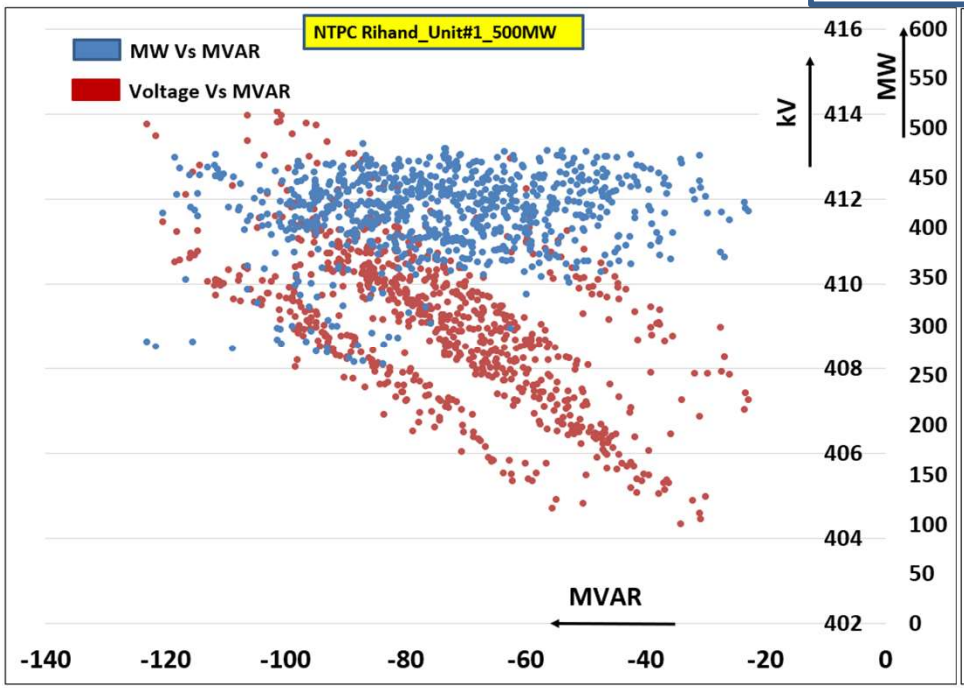
Adani Power Ltd.	KAWAI TPS U#1 (Target: 31-12-2024), KAWAI TPS U#2 (Target: 31-12-2024)
APCPL	INDIRA GANDHI STPP U#1 (Target: 31-12-2021), INDIRA GANDHI STPP U#2 (Target: 31-03-2022), INDIRA GANDHI STPP U#3 (Target: 30-06-2022)
GVK Power Ltd.	GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020) – initial target
HGPCL	PANIPAT TPS U#6 (Target: 30-04-2021), PANIPAT TPS U#7 (Target: 28-02-2021), PANIPAT TPS U#8 (Target: 31-12-2020), RAJIV GANDHI TPS U#1 (Target: 30-04-2022), RAJIV GANDHI TPS U#2 (Target: 28-02-2022), YAMUNA NAGAR TPS U#1 (Target: 31-12-2021), YAMUNA NAGAR TPS U#2 (Target: 31-10-2021) – initial target
NTPC	DADRI (NCTPP) U#1 (Target: 31-12-2020), DADRI (NCTPP) U#2 (Target: 31-10-2020), DADRI (NCTPP) U#3 (Target: 31-08-2020), DADRI (NCTPP) U#4 (Target: 30-06-2020), DADRI (NCTPP) U#5 (Target: 30-04-2020), DADRI (NCTPP) U#6 (Target: 29-02-2020), RIHAND STPS U#1 (Target: 28-02-2022), RIHAND STPS U#2 (Target: 31-12-2021), RIHAND STPS U#3 (Target: 31-12-2023), RIHAND STPS U#4 (Target: 31-12-2023), RIHAND STPS U#5 (Target: 30-06-2023), RIHAND STPS U#6 (Target: 30-06-2023), SINGRAULI STPS U#1 (Target: 31-08-2022), SINGRAULI STPS U#2 (Target: 31-08-2022), SINGRAULI STPS U#3 (Target: 31-08-2022), SINGRAULI STPS U#4 (Target: 31-08-2022), SINGRAULI STPS U#5 (Target: 31-08-2022), SINGRAULI STPS U#6 (Target: 31-08-2022), SINGRAULI STPS U#7 (Target: 31-08-2022), UNCHAHAR TPS U#1 (Target: 30-09-2023), UNCHAHAR TPS U#2 (Target: 30-09-2023), UNCHAHAR TPS U#3 (Target: 30-09-2023), UNCHAHAR TPS U#4 (Target: 30-09-2023), UNCHAHAR TPS U#5 (Target: 30-09-2023), UNCHAHAR TPS U#6 (Target: 31-03-2023), MEJA Stage-I U#1 (Target: 31-03-2022), MEJA Stage-I U#2 (Target: 31-03-2022), TANDA Stage-I U#1 (Target:), TANDA Stage-I U#2 (Target:), TANDA Stage-II U#3 (Target: 31-12-2022), TANDA Stage-II U#4 (Target: 31-12-2022)

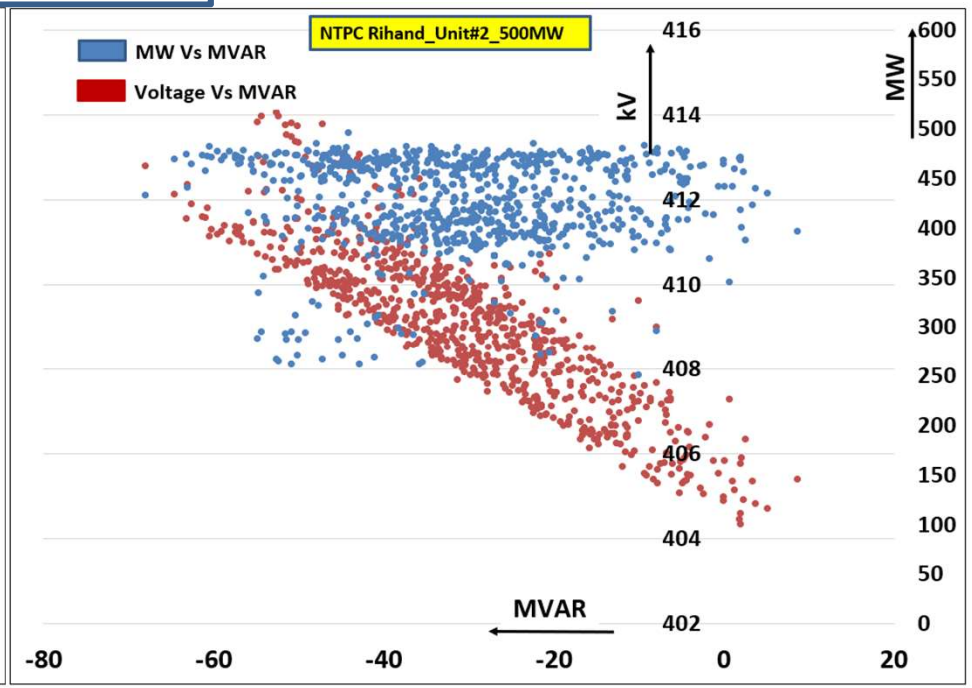
L&T Power Development Ltd (Nabha)	Nabha TPP (Rajpura TPP) U#1 (Target: 30-04-2021), Nabha TPP (Rajpura TPP) U#2 (Target: 28-02-2021) – initial target
Lalitpur Power Gen. Company Ltd.	LALITPUR TPS U#1 (Target: 31-12-2024), LALITPUR TPS U#2 (Target: 30-09-2024), LALITPUR TPS U#3 (Target: 30-06-2024)
Lanco Anpara Power Ltd.	ANPARA C TPS U#1 (Target: 31-12-2023), ANPARA C TPS U#2 (Target: 31-12-2023)
Prayagraj Power Generation Company Ltd.	PRAYAGRAJ TPP U#1 (Target: 31-12-2024), PRAYAGRAJ TPP U#2 (Target: 31-12-2024), PRAYAGRAJ TPP U#3 (Target: 31-12-2024)
PSPCL	GH TPS (LEH.MOH.) U#1 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#2 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#3 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#4 (Target: 31-12-2024), GGSSTP, Ropar U#3 (Target: 31-03-2022), GGSSTP, Ropar U#4 (Target: 31-05-2022), GGSSTP, Ropar U#5 (Target: 31-07-2022), GGSSTP, Ropar U#6 (Target: 30-09-2022)

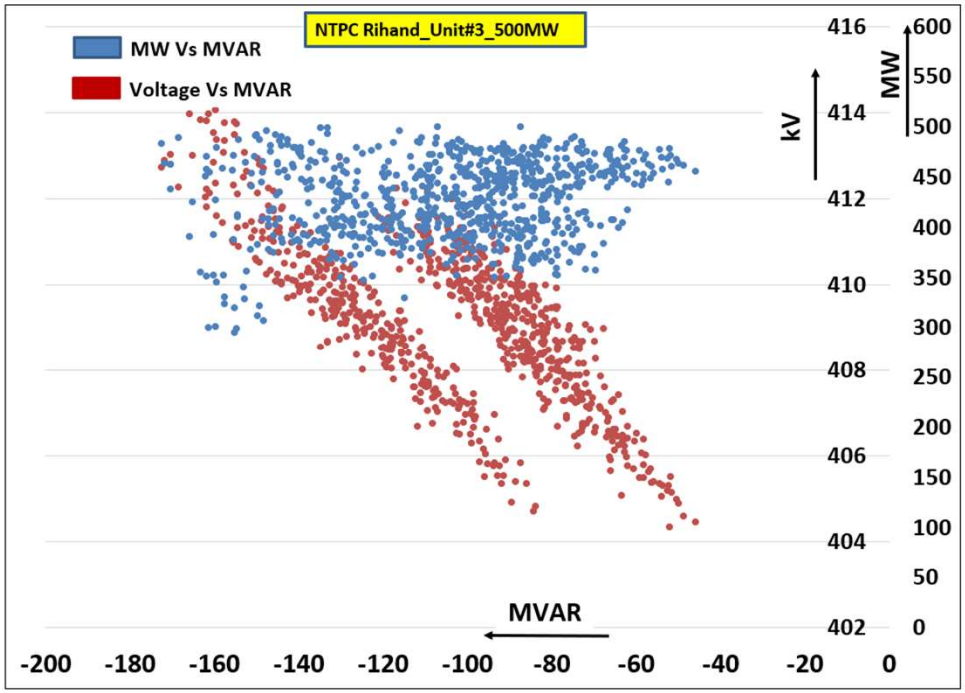
Rosa Power Supply Company	ROSA TPP Ph-I U#1 (Target: 31-12-2024), ROSA TPP Ph-I U#2 (Target: 31-12-2024), ROSA TPP Ph-I U#3 (Target: 31-12-2024), ROSA TPP Ph-I U#4 (Target: 31-12-2024)
RRVUNL	KOTA TPS U#5 (Target: 31-12-2022), KOTA TPS U#6 (Target: 31-12-2022), KOTA TPS U#7 (Target: 31-12-2022), SURATGARH TPS U#1 (Target: 31-12-2024), SURATGARH TPS U#2 (Target: 31-12-2024), SURATGARH TPS U#3 (Target: 31-12-2024), SURATGARH TPS U#4 (Target: 31-12-2024), SURATGARH TPS U#5 (Target: 31-12-2024), SURATGARH TPS U#6 (Target: 31-12-2024), SURATGARH SCTPS U#7 (Target: 31-12-2024), SURATGARH SCTPS U#8 (Target: 31-12-2024), CHHABRA TPP U#1 (Target: 31-12-2024), CHHABRA TPP U#2 (Target: 31-12-2024), CHHABRA TPP U#3 (Target: 31-12-2024), CHHABRA TPP U#4 (Target: 31-12-2024), CHHABRA SCPP U#5 (Target: 31-12-2024), CHHABRA SCPP U#6 (Target: 31-12-2024), KALISINDH TPS U#1 (Target: 31-12-2024), KALISINDH TPS U#2 (Target: 31-12-2024)
Talwandi Sabo Power Ltd.	TALWANDI SABO TPP U#1 (Target: 28-02-2021), TALWANDI SABO TPP U#2 (Target: 31-12-2020), TALWANDI SABO TPP U#3 (Target: 31-10-2020) – initial target
UPRVUNL	ANPARA TPS U#1 (Target: 31-10-2022), ANPARA TPS U#2 (Target: 31-08-2022), ANPARA TPS U#3 (Target: 30-06-2022), ANPARA TPS U#4 (Target: 30-04-2022), ANPARA TPS U#5 (Target: 28-02-2022), ANPARA TPS U#6 (Target: 30-12-2021), ANPARA TPS U#7 (Target: 22-03-2021), HARDUAGANJ TPS U#8 (Target: 31-12-2021), HARDUAGANJ TPS U#9 (Target: 31-12-2021), OBRA TPS U#9 (Target: 31-08-2022), OBRA TPS U#10 (Target: 31-10-2022), OBRA TPS U#11 (Target: 31-12-2022), OBRA TPS U#12 (Target: 30-06-2022), OBRA TPS U#13 (Target: 30-04-2022), PARICHHA TPS U#3 (Target: 30-04-2022), PARICHHA TPS U#4 (Target: 30-04-2022), PARICHHA TPS U#5 (Target: 28-02-2022), PARICHHA TPS U#6 (Target: 31-12-2021)

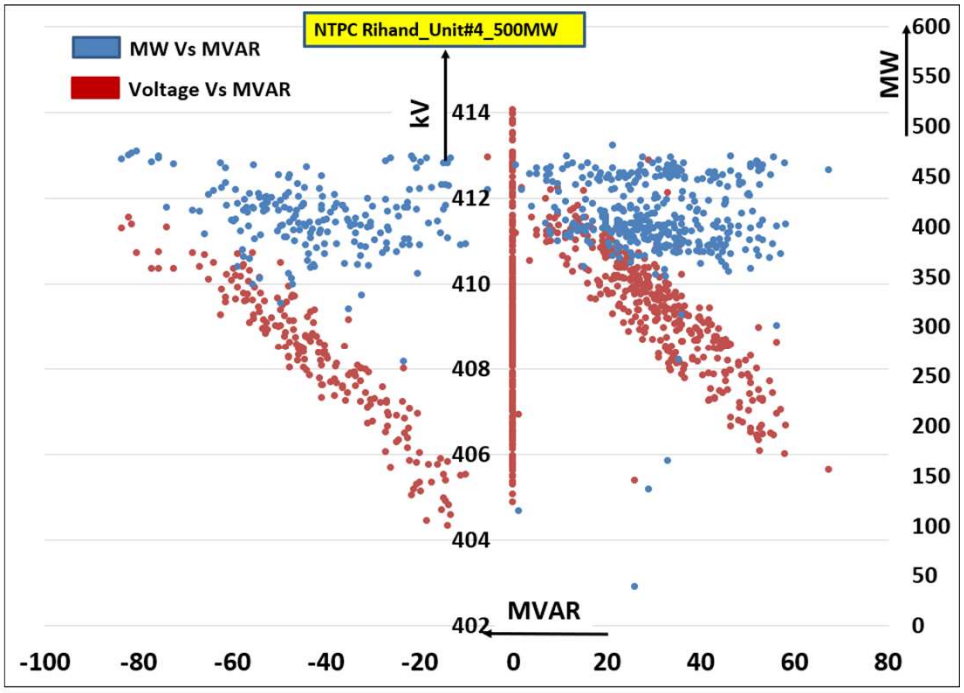

NTPC Dadri_Unit#6_490MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
430
425
420
415
410
405
400
395
600
400
300
200
100
0
-100
-200
-150
-100
50
100

NTPC Rihand

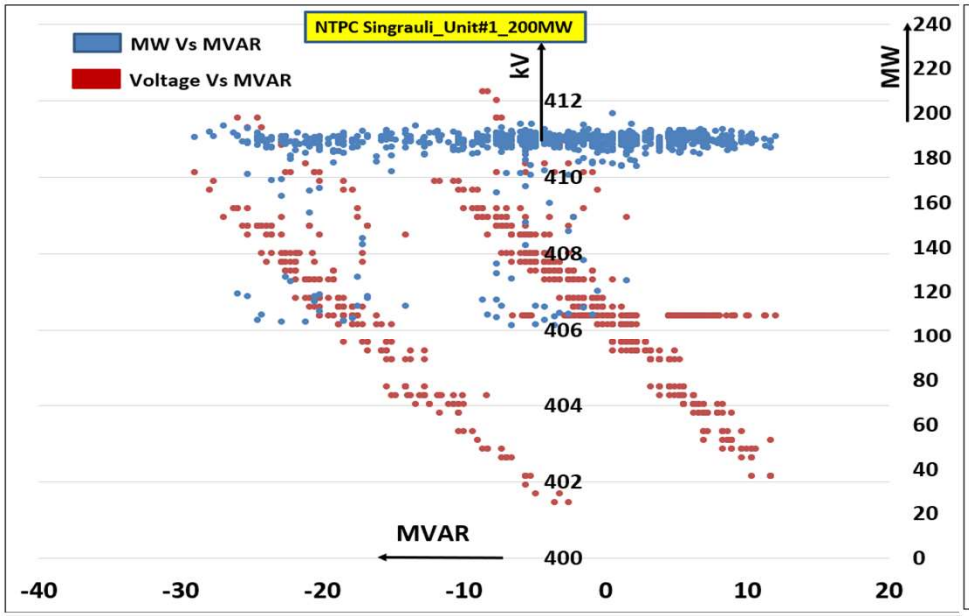

NTPC Rihand_Unit#1_500MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
416
414
412
410
408
406
404
402
600
550
500
450
400
350
300
250
200
150
100
50
0
-140
-120
-100
-80
-60
-40
-20
0

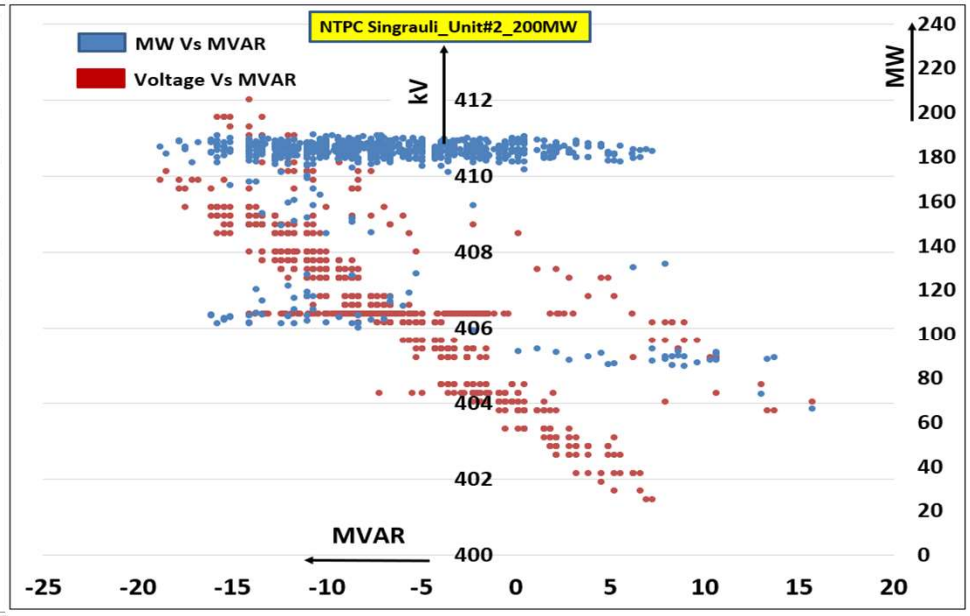

NTPC Rihand_Unit#2_500MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
416
414
412
410
408
406
404
402
600
550
500
450
400
350
300
250
200
150
100
50
0
-80
-60
-40
-20
0
20

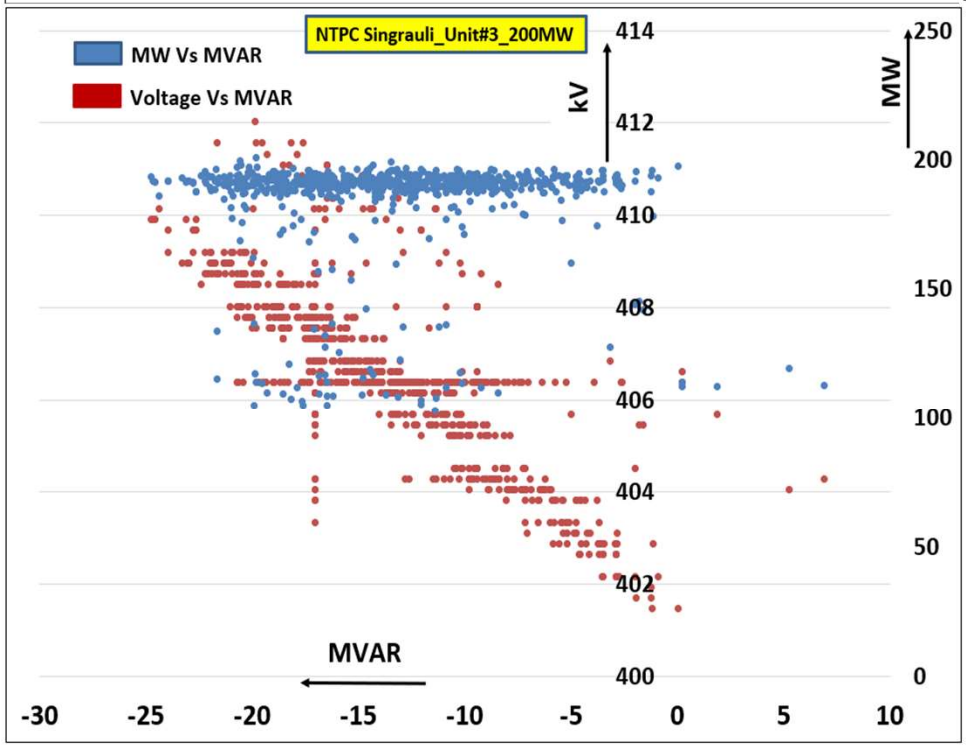

NTPC Rihand_Unit#3_500MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
416
414
412
410
408
406
404
402
600
550
500
450
400
350
300
250
200
150
100
50
0
-200
-180
-160
-140
-120
-100
-80
-60
-40
-20
0

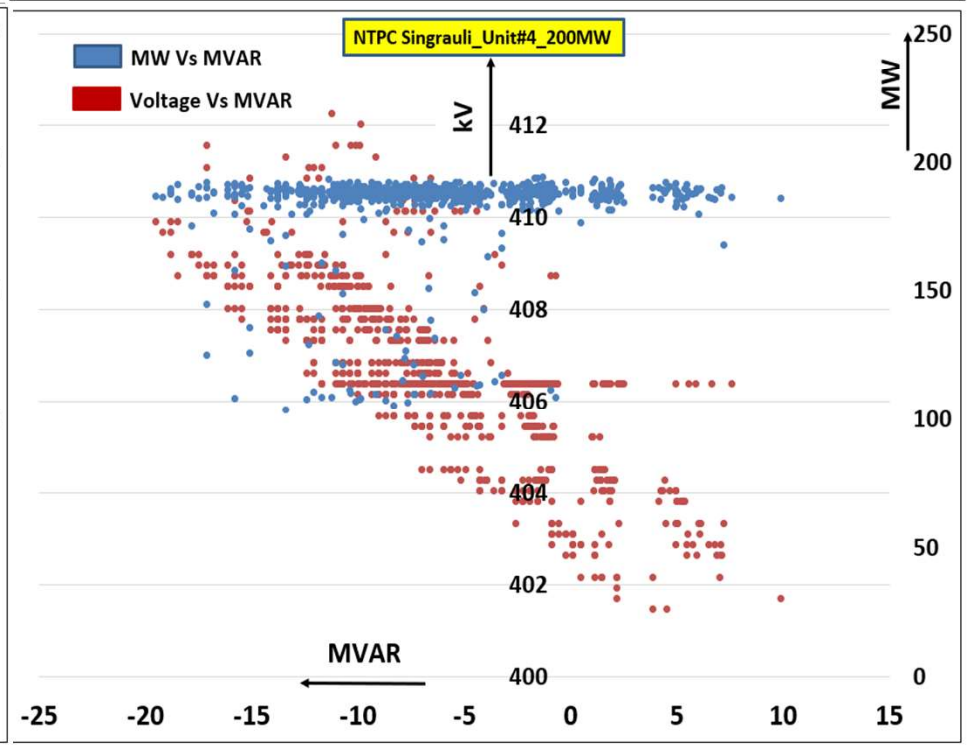

NTPC Rihand_Unit#4_500MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
414
412
410
408
406
404
402
600
550
500
450
400
350
300
250
200
150
100
50
0
-100
-80
-60
-40
-20
0
20
40
60
80

NTPC Singrauli

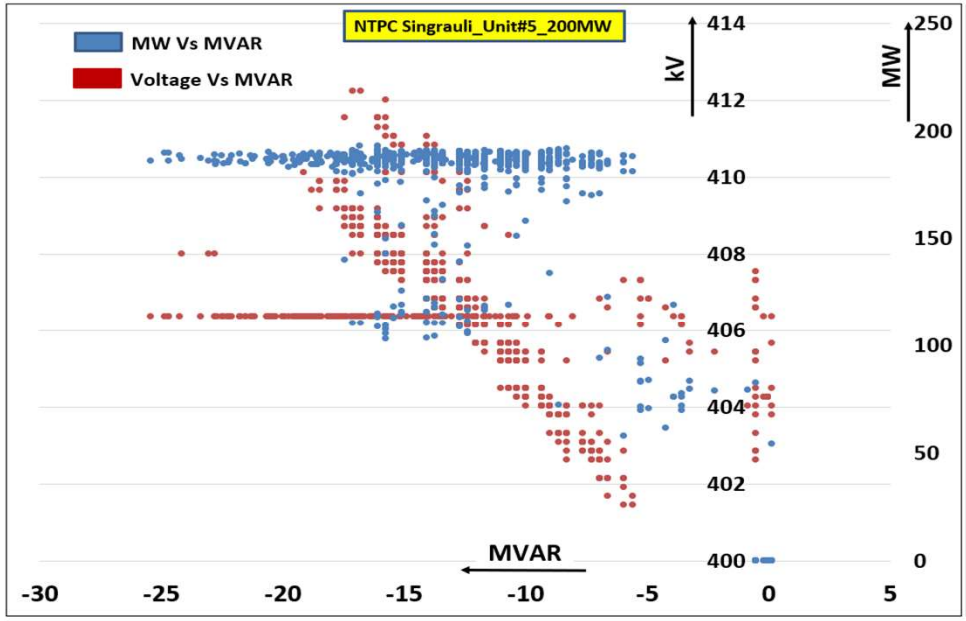


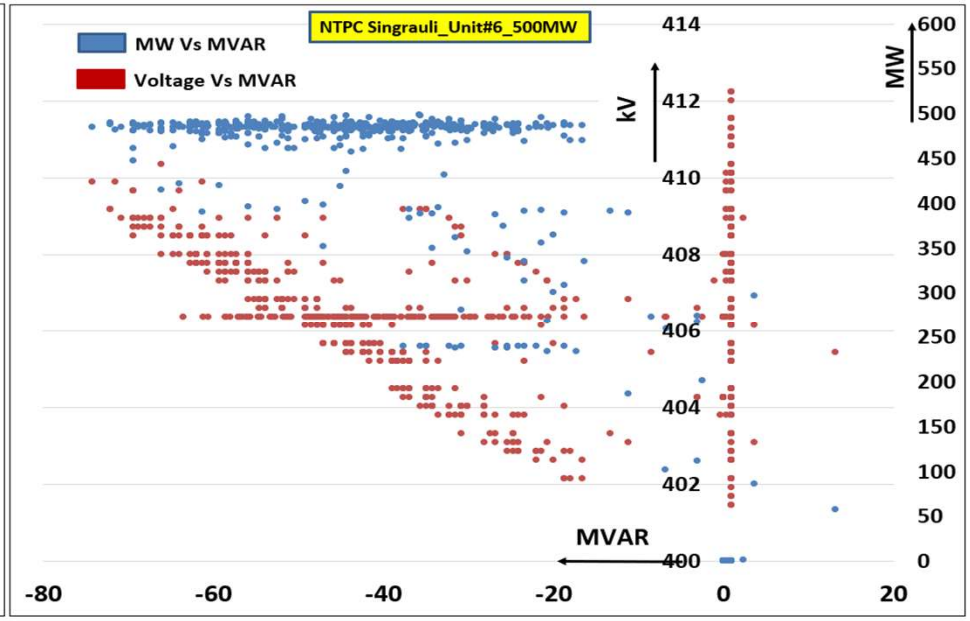


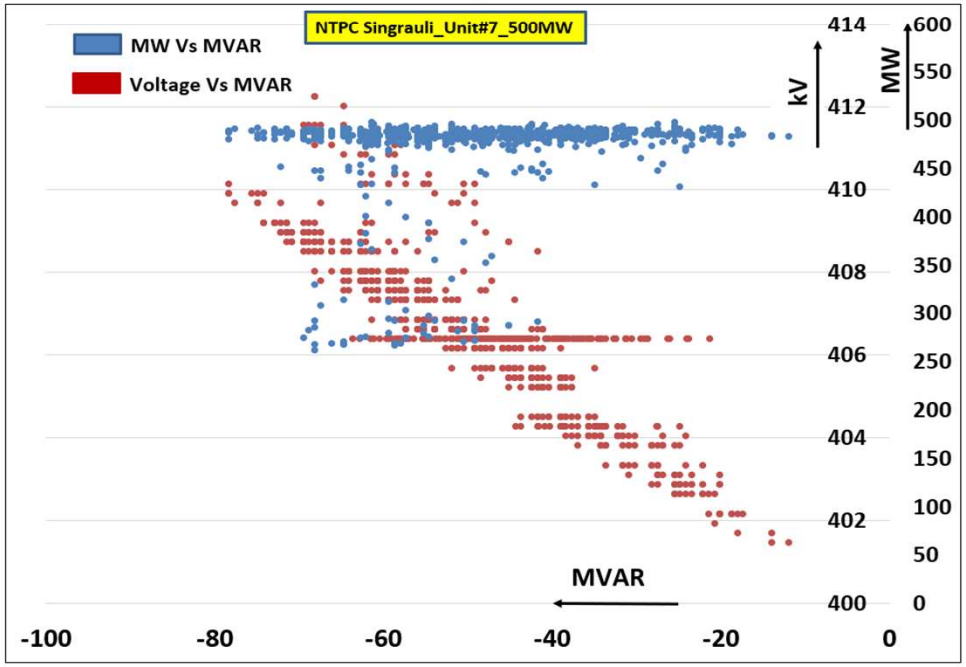




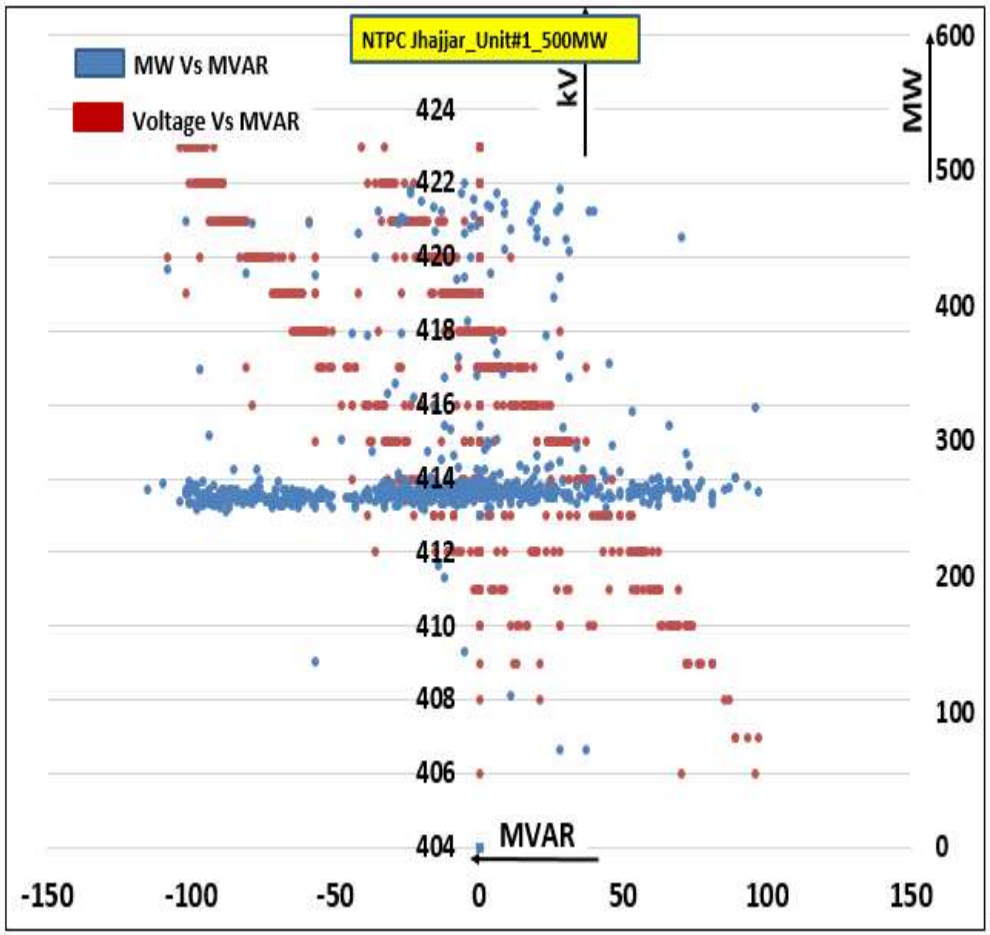
NTPC Singrauli

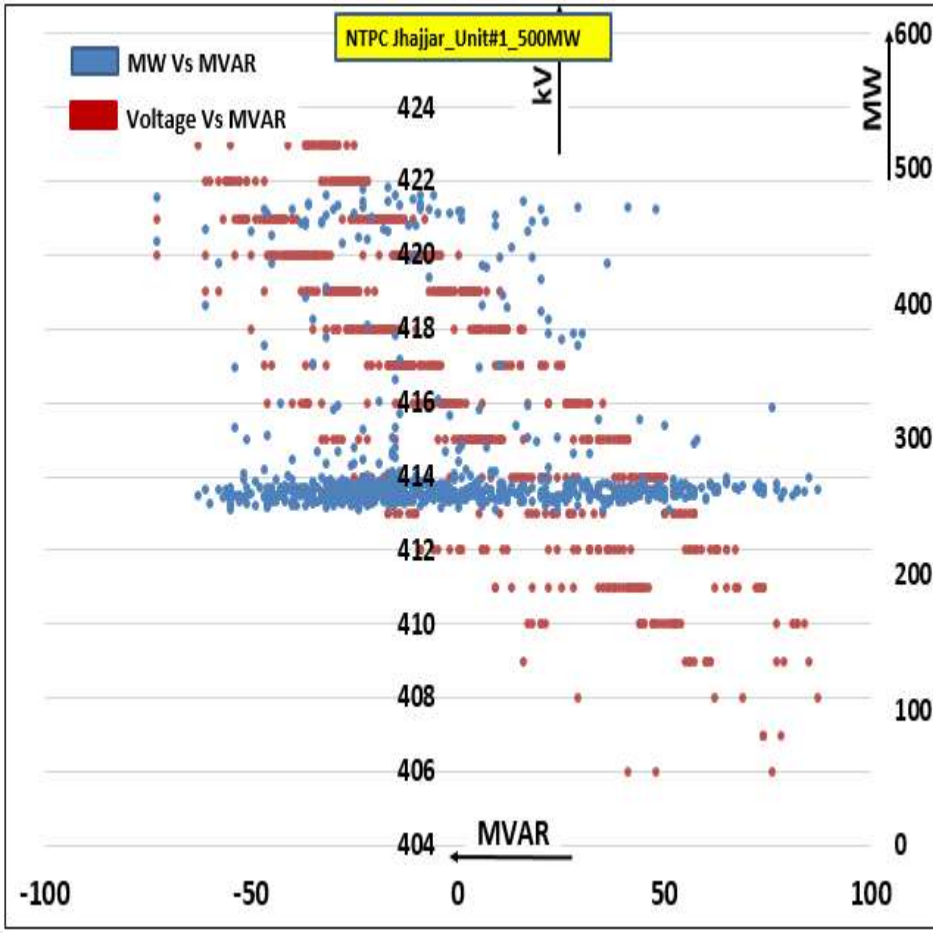




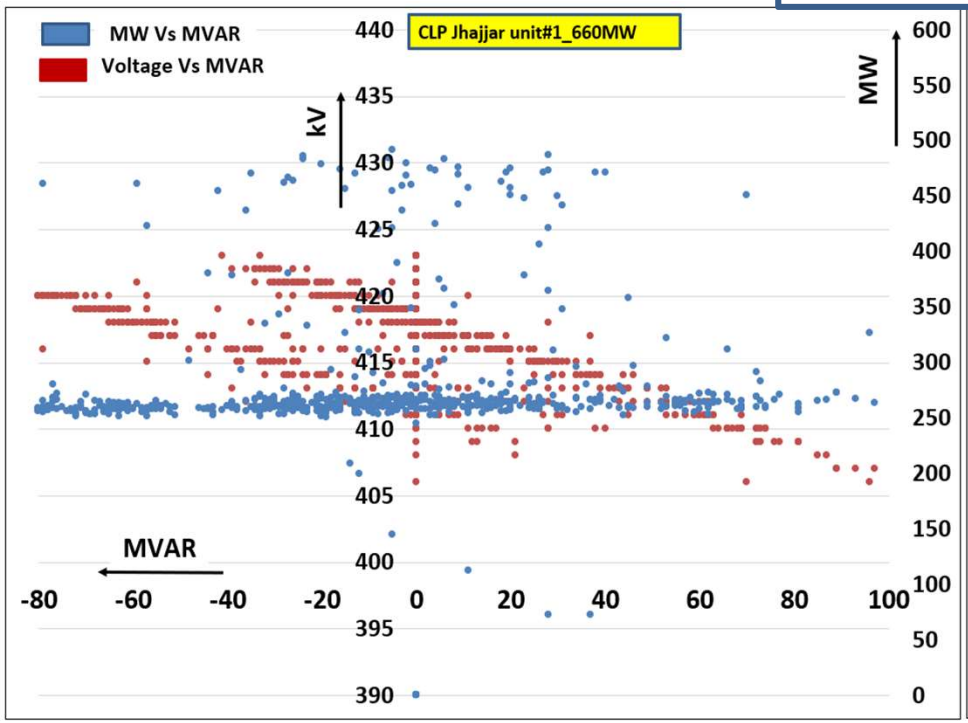


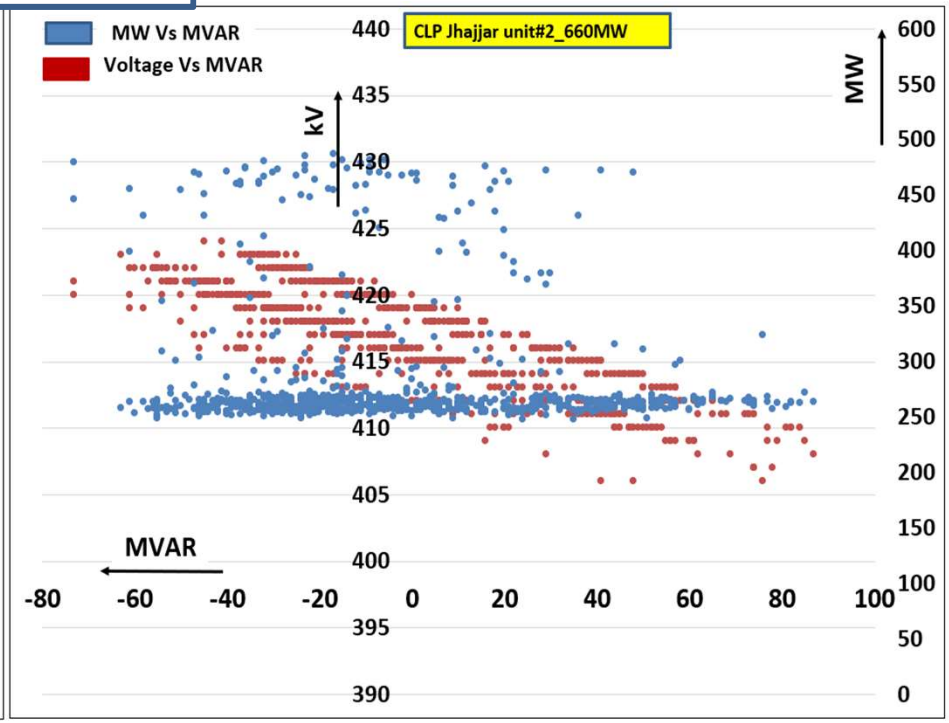
NTPC Jhajjar

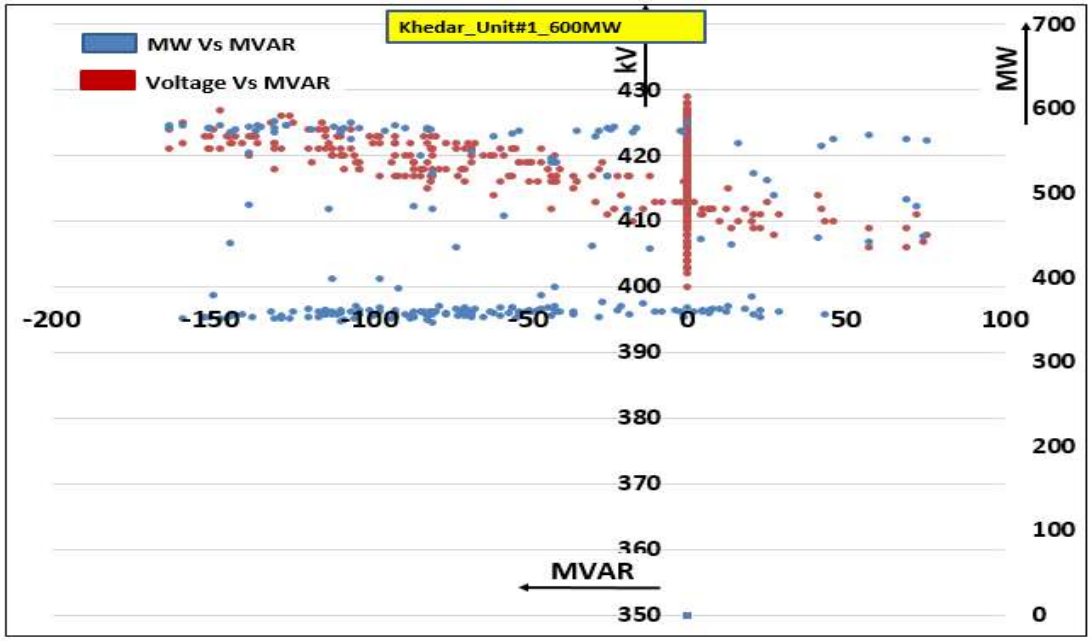


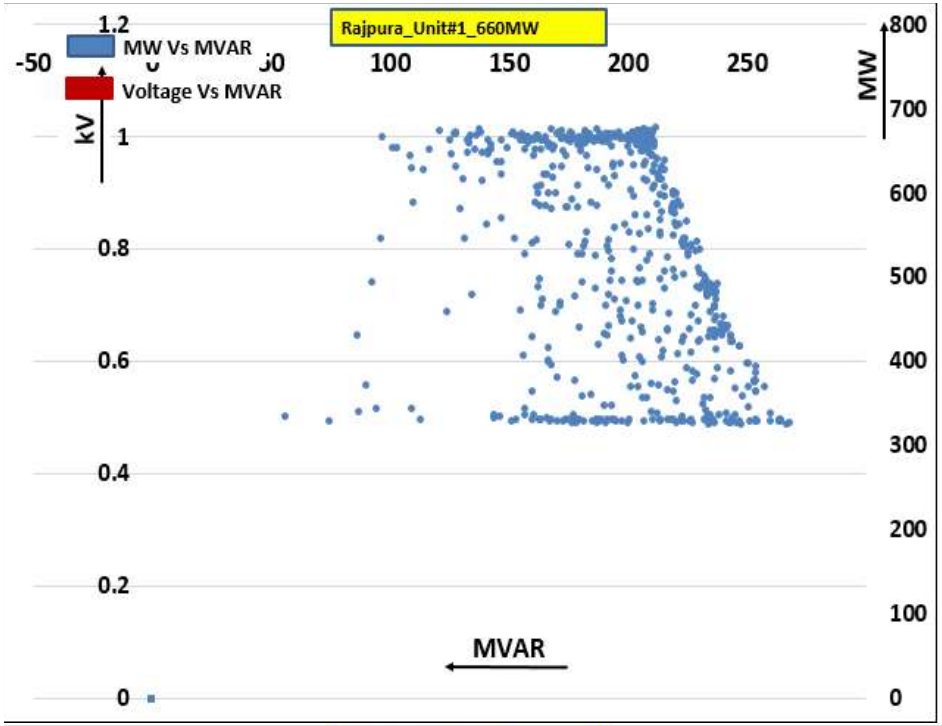


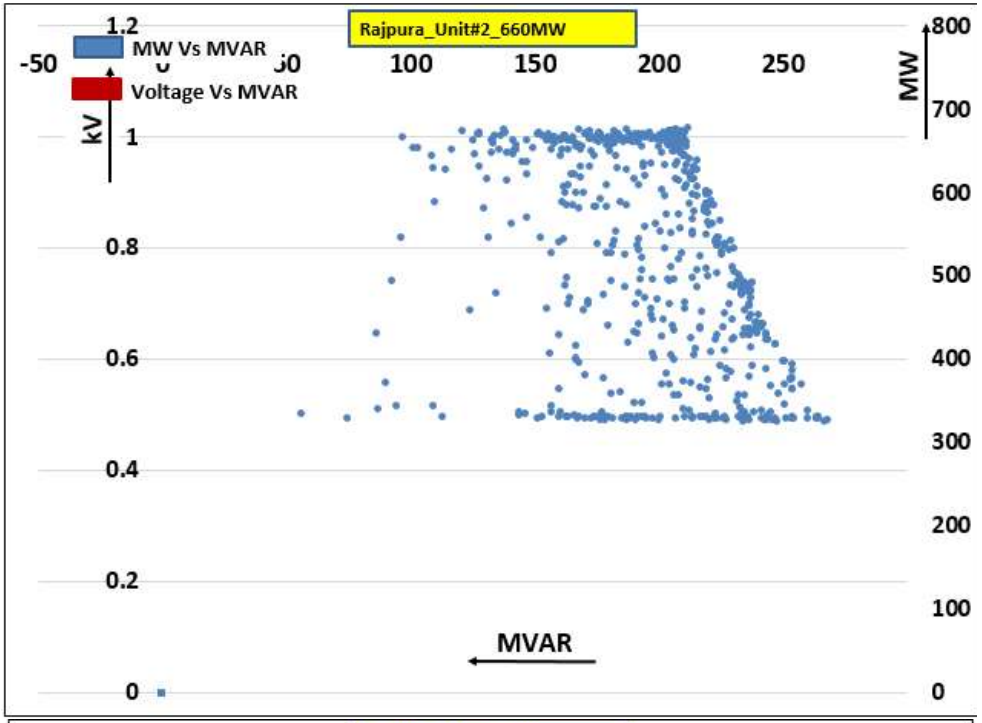
CLP Jhajjar

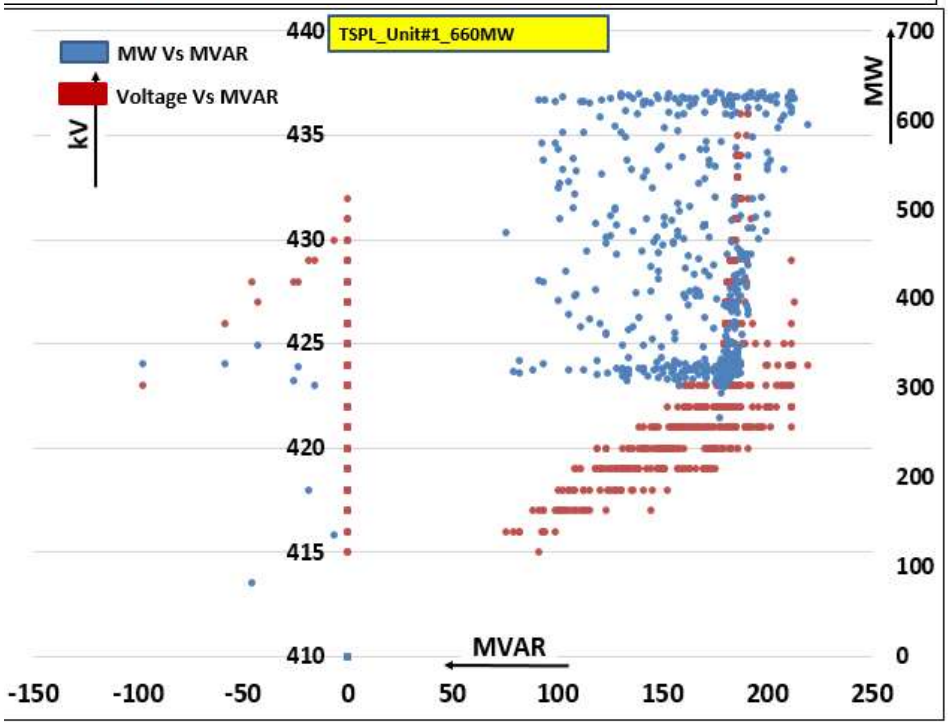

MW Vs MVAR
Voltage Vs MVAR
CLP Jhajjar unit#1_660MW
kV
MW
MVAR
440
435
430
425
420
415
410
405
400
395
390
600
550
500
450
400
350
300
250
200
150
100
50
0
-80
-60
-40
-20
0
20
40
60
80
100

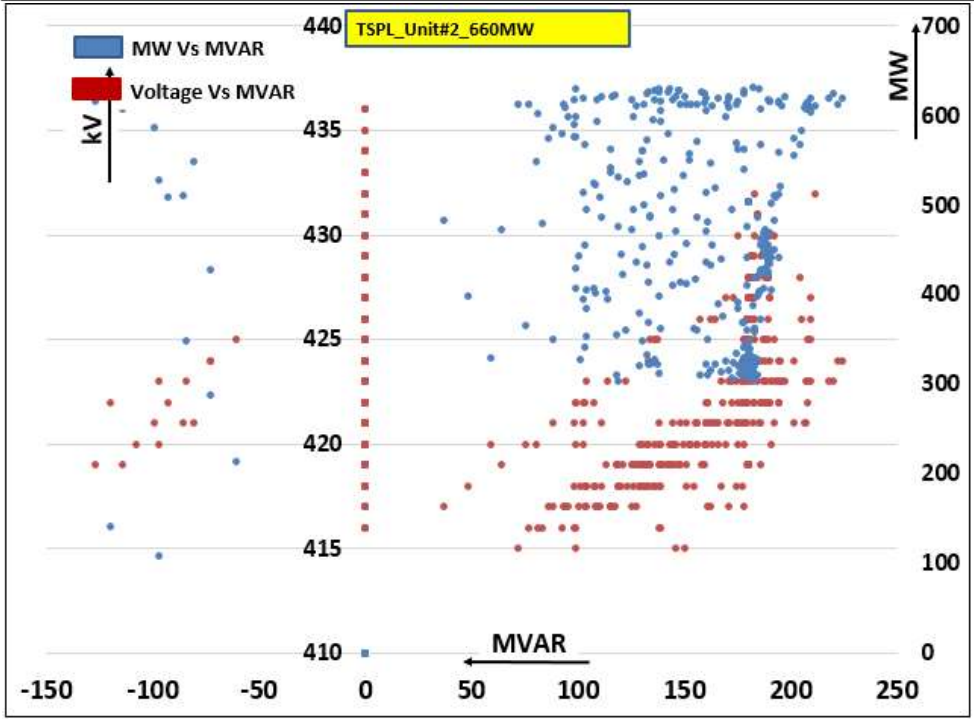

MW Vs MVAR
Voltage Vs MVAR
CLP Jhajjar unit#2_660MW
kV
MW
MVAR
440
435
430
425
420
415
410
405
400
395
390
600
550
500
450
400
350
300
250
200
150
100
50
0
-80
-60
-40
-20
0
20
40
60
80
100


MW Vs MVAR
Voltage Vs MVAR
Khedar_Unit#1_600MW
kV
MW
MVAR
430
420
410
400
390
380
370
360
350
700
600
500
400
300
200
100
0
-200
-150
-100
-50
0
50
100

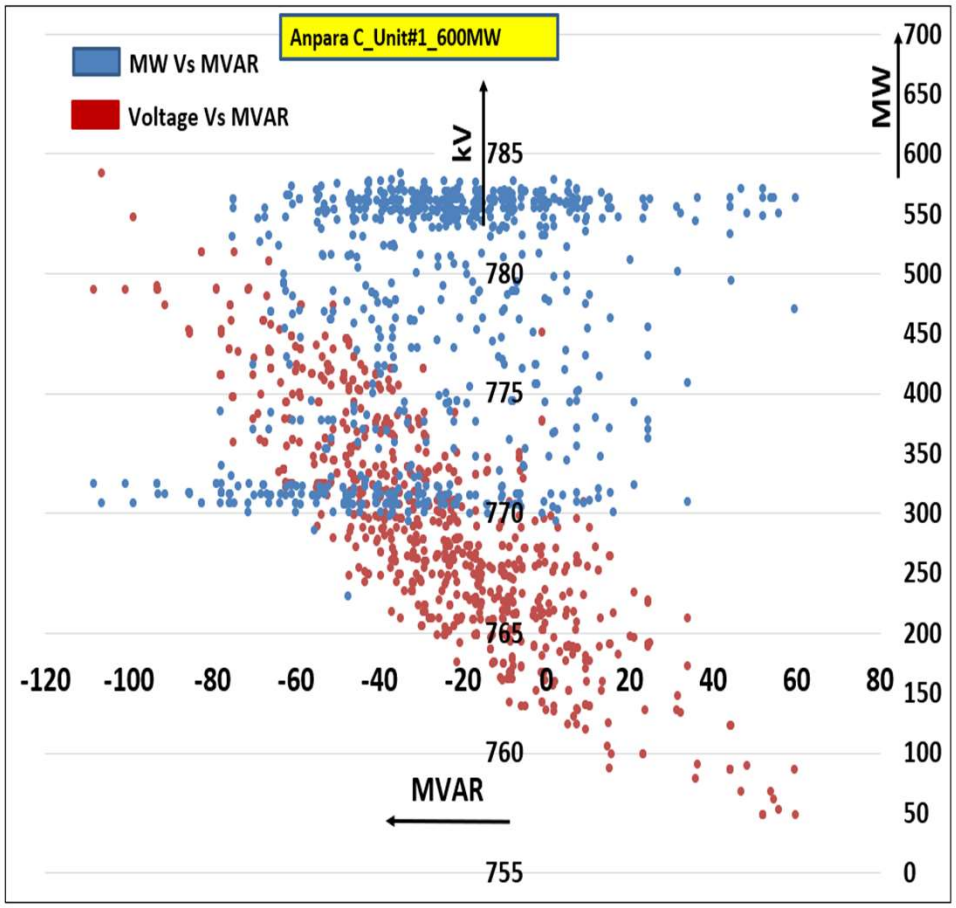

Rajpura_Unit#1_660MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
1.2
1
0.8
0.6
0.4
0.2
0
800
700
600
500
400
300
200
100
0
-50
100
150
200
250

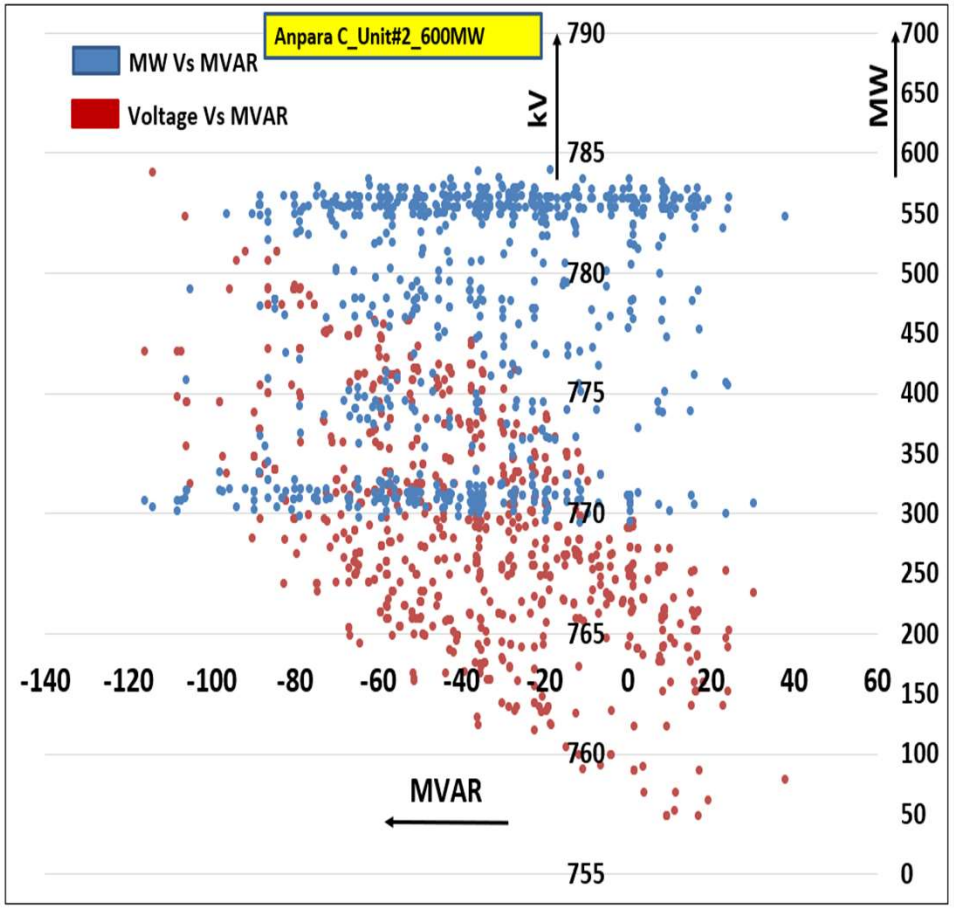

Rajpura_Unit#2_660MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
1.2
1
0.8
0.6
0.4
0.2
0
800
700
600
500
400
300
200
100
0
-50
100
150
200
250


TSPL_Unit#1_660MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
440
435
430
425
420
415
410
700
600
500
400
300
200
100
0
-150
-100
-50
0
50
100
150
200
250

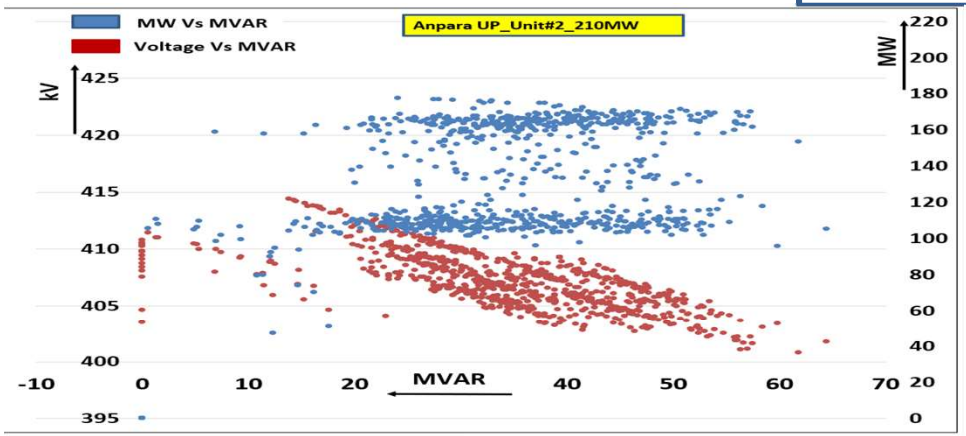

TSPL_Unit#2_660MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
440
435
430
425
420
415
410
700
600
500
400
300
200
100
0
-150
-100
-50
0
50
100
150
200
250

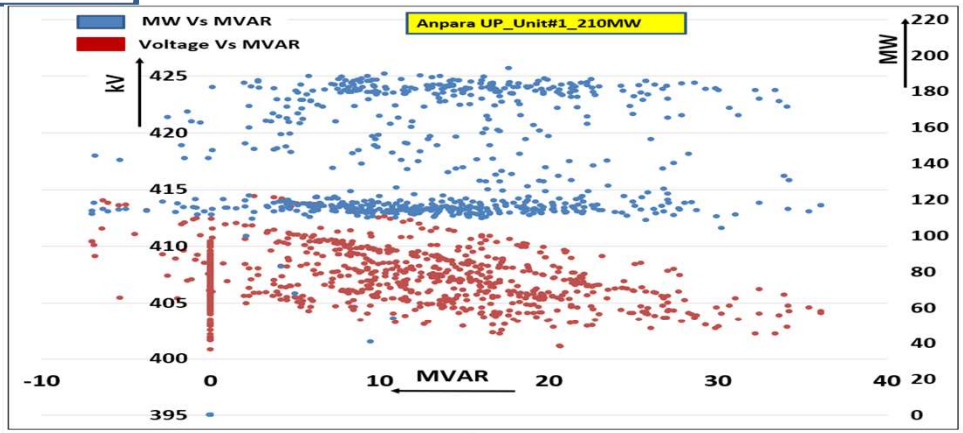
Anpara C

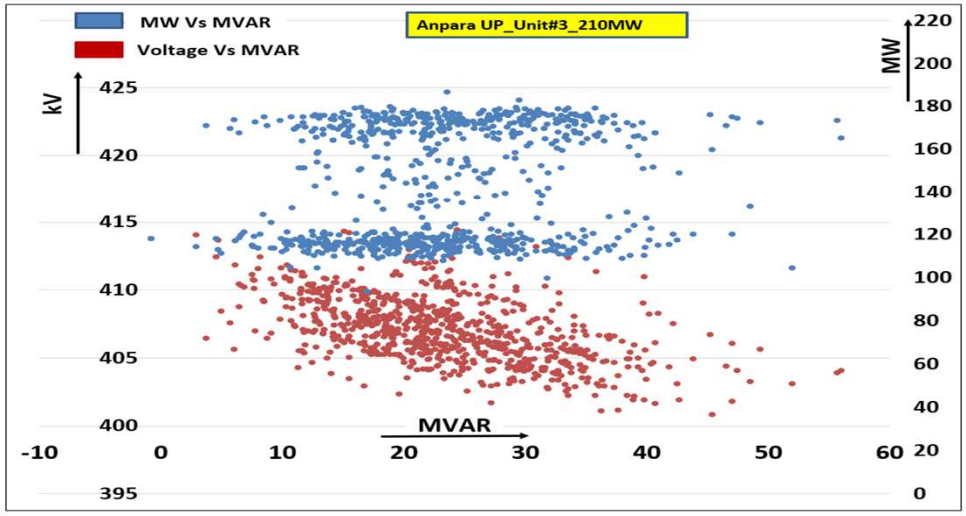

Anpara C_Unit#1_600MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
785
780
775
770
765
760
755
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
-120
-100
-80
-60
-40
-20
0
20
40
60
80


Anpara C_Unit#2_600MW
MW Vs MVAR
Voltage Vs MVAR
kV
MW
MVAR
790
785
780
775
770
765
760
755
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
-140
-120
-100
-80
-60
-40
-20
0
20
40
60

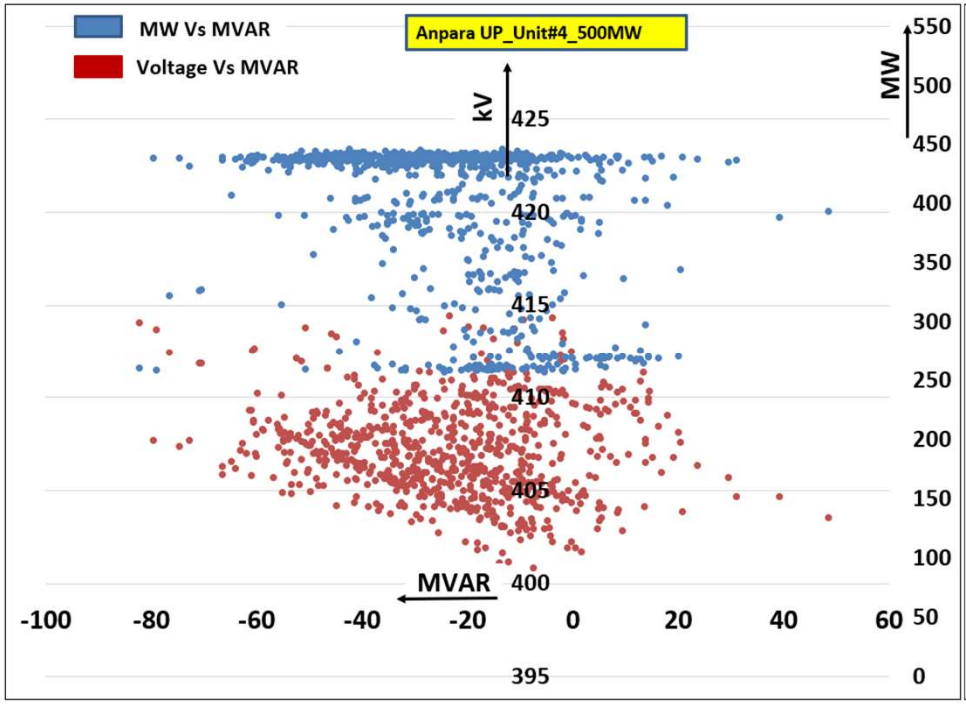
Anpara UP

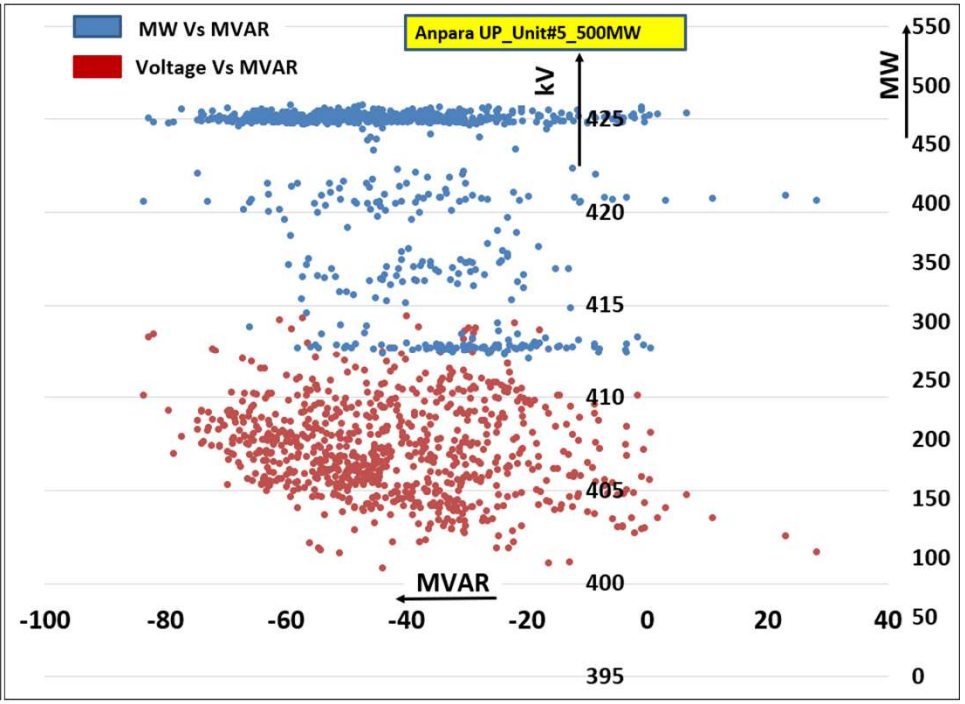

MW Vs MVAR
Voltage Vs MVAR
Anpara UP_Unit#2_210MW
kV
MW
MVAR
425
420
415
410
405
400
395
220
200
180
160
140
120
100
80
60
40
20
0
-10
0
10
20
40
50
60
70


MW Vs MVAR
Voltage Vs MVAR
Anpara UP_Unit#1_210MW
kV
MW
MVAR
425
420
415
410
405
400
395
220
200
180
160
140
120
100
80
60
40
20
0
-10
0
10
20
30
40

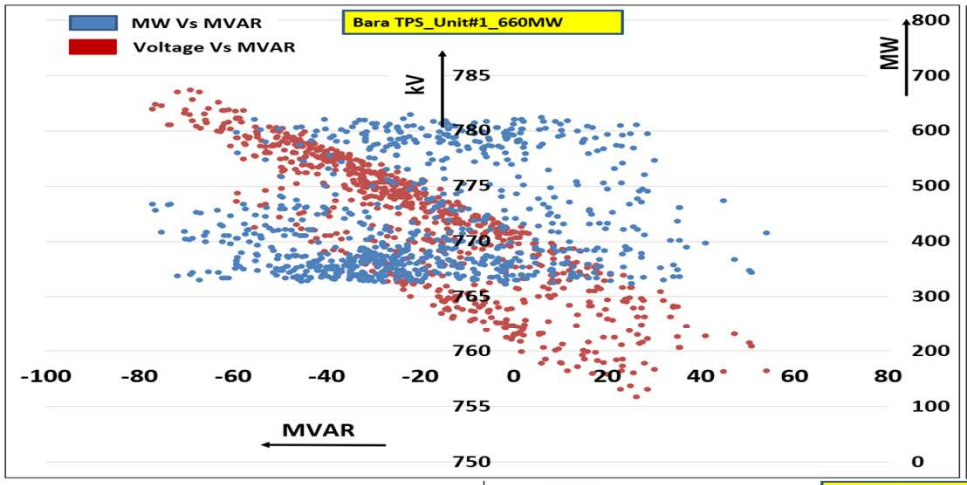

MW Vs MVAR
Voltage Vs MVAR
Anpara UP_Unit#3_210MW
kV
MW
MVAR
425
420
415
410
405
400
395
220
200
180
160
140
120
100
80
60
40
20
0
-10
0
10
20
30
40
50
60

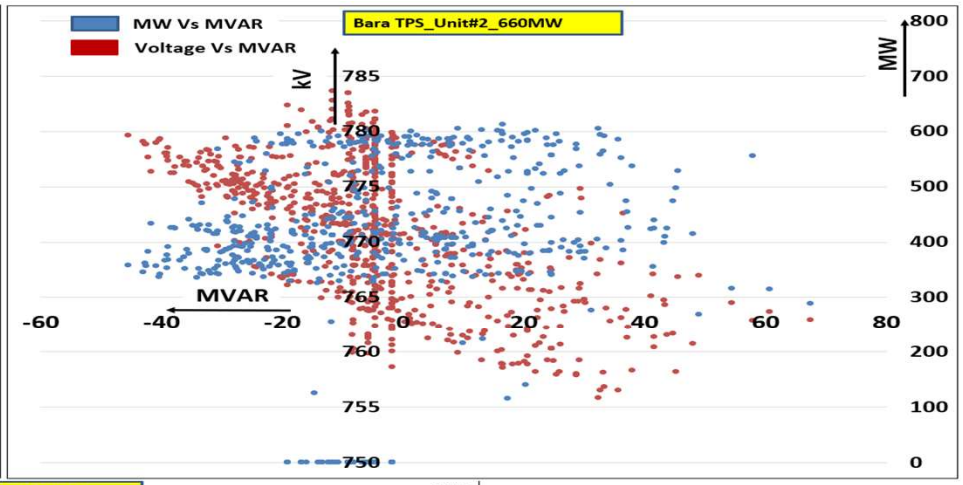
Anpara UP

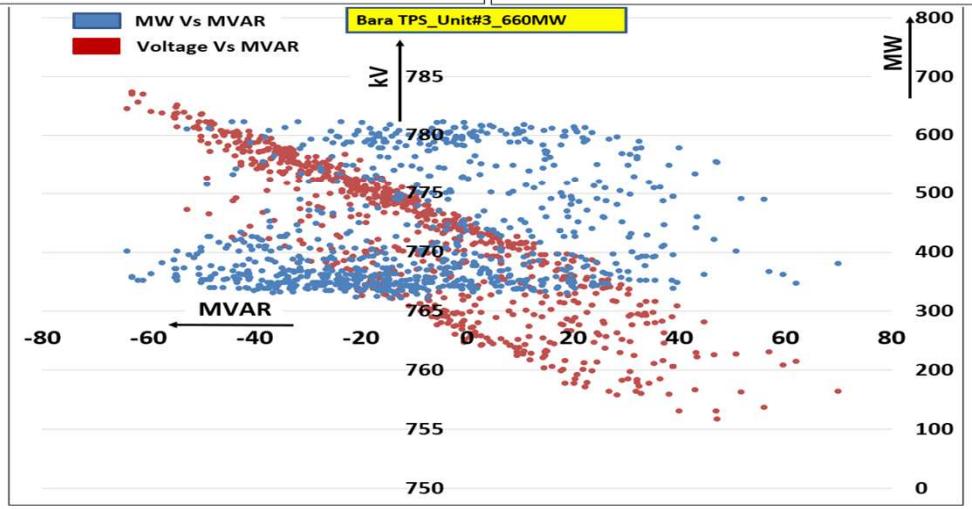

MW Vs MVAR
Voltage Vs MVAR
Anpara UP_Unit#4_500MW
kV
425
420
415
410
405
400
395
MVAR
-100
-80
-60
-40
-20
0
20
40
60
MW
550
500
450
400
350
300
250
200
150
100
50
0


MW Vs MVAR
Voltage Vs MVAR
Anpara UP_Unit#5_500MW
kV
425
420
415
410
405
400
395
MVAR
-100
-80
-60
-40
-20
0
20
40
MW
550
500
450
400
350
300
250
200
150
100
50
0

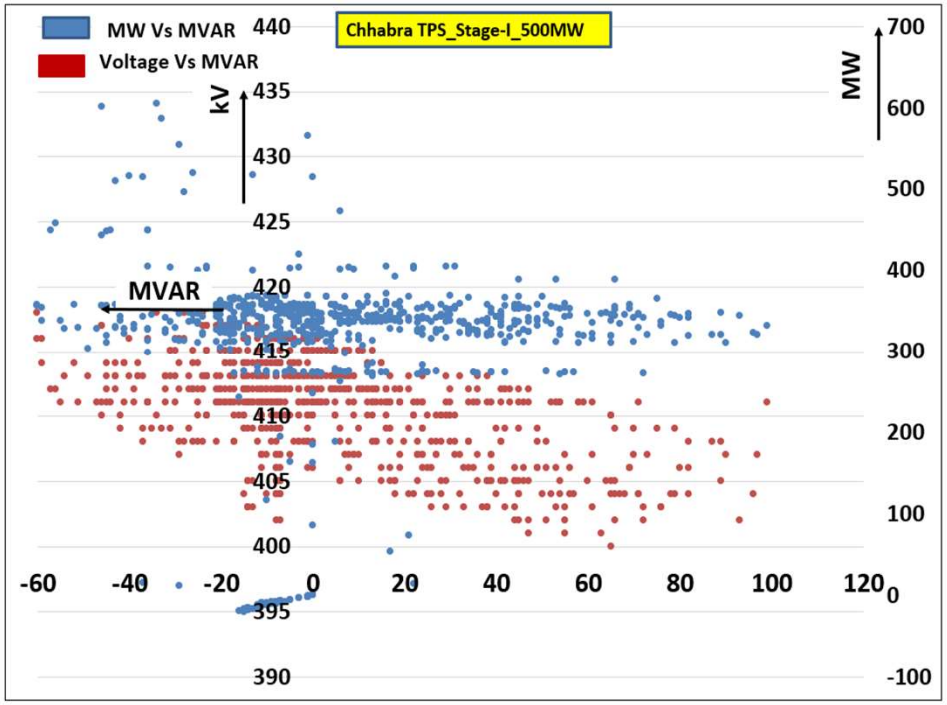
Bara TPS

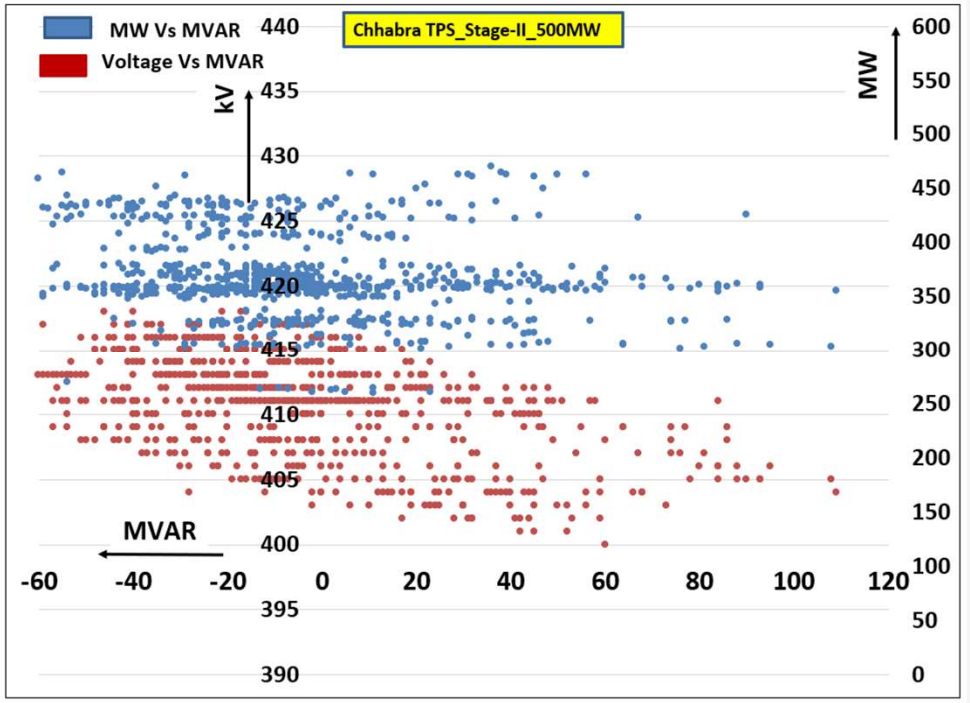

MW Vs MVAR
Voltage Vs MVAR
Bara TPS_Unit#1_660MW
kV
MW
MVAR
785
780
775
770
765
760
755
750
800
700
600
500
400
300
200
100
0
-100
-80
-60
-40
-20
0
20
40
60
80


MW Vs MVAR
Voltage Vs MVAR
Bara TPS_Unit#2_660MW
kV
MW
MVAR
785
780
775
770
765
760
755
750
800
700
600
500
400
300
200
100
0
-60
-40
-20
0
20
40
60
80

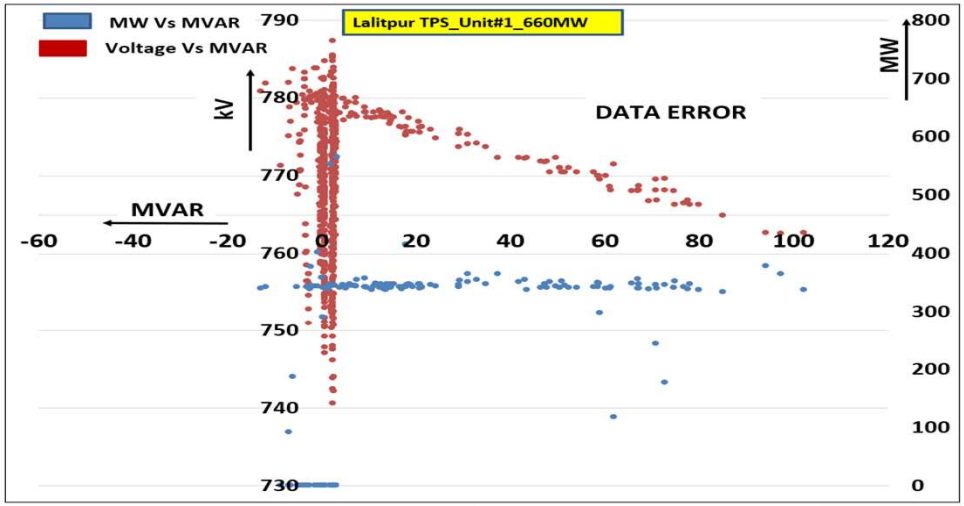

MW Vs MVAR
Voltage Vs MVAR
Bara TPS_Unit#3_660MW
kV
MW
MVAR
785
780
775
770
765
760
755
750
800
700
600
500
400
300
200
100
0
-80
-60
-40
-20
0
20
40
60
80

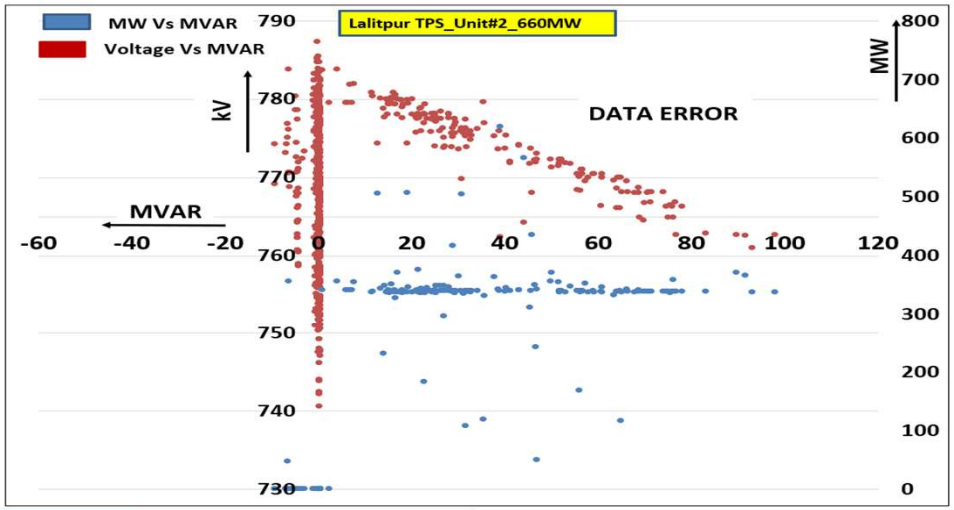
Chhabra TPS

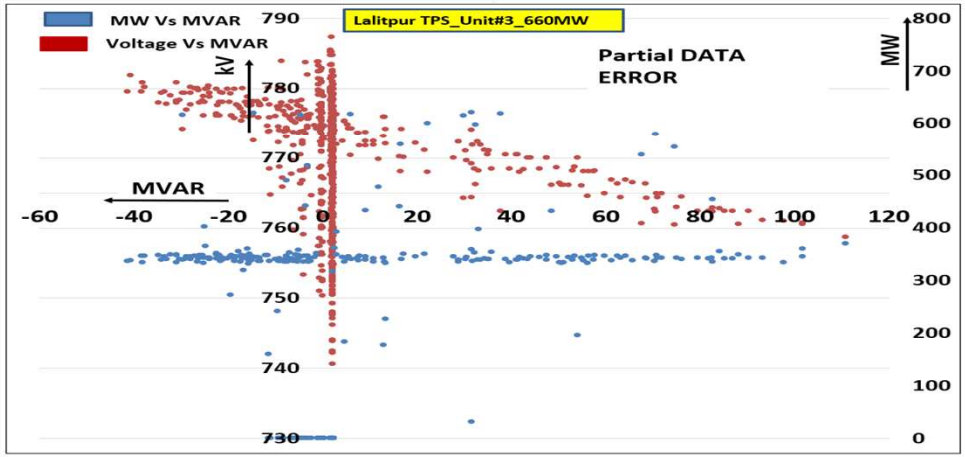

MW Vs MVAR
Voltage Vs MVAR
Chhabra TPS_Stage-I_500MW
kV
MW
MVAR
440
435
430
425
420
415
410
405
400
395
390
700
600
500
400
300
200
100
0
-100
-60
-40
-20
0
20
40
60
80
100
120


MW Vs MVAR
Voltage Vs MVAR
Chhabra TPS_Stage-II_500MW
kV
MW
MVAR
440
435
430
425
420
415
410
405
400
395
390
600
550
500
450
400
350
300
250
200
150
100
50
0
-60
-40
-20
0
20
40
60
80
100
120

Lalitpur


MW Vs MVAR
Voltage Vs MVAR
Lalitpur TPS_Unit#1_660MW
DATA ERROR
kV
MW
MVAR
790
780
770
760
750
740
730
800
700
600
500
400
300
200
100
0
-60
-40
-20
0
20
40
60
80
100
120


MW Vs MVAR
Voltage Vs MVAR
Lalitpur TPS_Unit#2_660MW
DATA ERROR
kV
MW
MVAR
790
780
770
760
750
740
730
800
700
600
500
400
300
200
100
0
-60
-40
-20
0
20
40
60
80
100
120


MW Vs MVAR
Voltage Vs MVAR
Lalitpur TPS_Unit#3_660MW
Partial DATA ERROR
kV
MW
MVAR
790
780
770
760
750
740
730
800
700
600
500
400
300
200
100
0
-60
-40
-20
0
20
40
60
80
100
120

LONG OUTAGES REPORT AS ON 14-10-22021

Annexure-B.II

S. No`	Element Name	Type	Owner	Outage Date and Time		Outage days	Reason / Remarks
A	**LINE**						
1	220 KV Kishenpur(PG)-Ramban(PDD) (PDD) Ckt-1	Line	PDD JK	31-03-2020	16:43	595	Due to heavy land slide near village Dalwas at Ramban damages occurred to 220 KV D/C KPTL at Location No :-187,188 &189 and there is every apprehension of collapsing Tower Loc No 189 .
2	220 KV New Tanda (UP)-Sohawal(PG) (UP) Ckt-1	Line	UPPTCL	06-09-2021	23:37	71	Phase to phase fault Y-B Fault current Iy 4.28kA, Ib 4.24kA, Dist. 39.3km from new Tanda end.Tower damage reported.
3	220 KV New Tanda (UP)-Sohawal(PG) (UP) Ckt-2	Line	UPPTCL	06-09-2021	23:37	71	Phase to earth fault B-N , Fault current 2.49kA, Dist. 35.6 km from new Tanda end. Tower damage reported.
4	400 KV Kishenpur-NewWanpoh (PG) Ckt-3	Line	POWERGRID	23-10-2021	10:05	25	Phase to earth fault R-N , Dist. 47.3km, Fault current 5.14kA from Kishenpur & Dist. 82km, Fault current 2.7kA from New Wanpoh. Line tripped during heavy rain & lightening. Tower collapsed at loc. no. 145.
5	220 KV Sohawal(PG)-Gonda(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:00	97	Emergency shutdown of line taken, as tower no. 34 is affected by flood.
6	220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:12	97	Emergency shutdown of line taken, as tower no. 34 is affected by flood.
7	400 KV BASSI-BHIWADI (PG) CKT-1	Line	POWERGRID	10-10-2021	08:33	38	S/D for Shifting/Diversion work of due to NHAI
8	400 KV UNNAO-PANKI (UP) CKT-1	Line	UPPTCL	11-10-2021	10:02	37	Shutdown required due to PTPS Panki (Diversion work due to Extension of PTPS Panki.
9	765 KV ORAI-ALIGARH (PG) CKT-1	Line	POWERGRID	28-10-2021	10:08	20	for diversion work due to construction of Bundelkhand Expressway
10	765 KV ORAI-ALIGARH (PG) CKT-2	Line	POWERGRID	28-10-2021	10:40	20	for diversion work due to construction of Bundelkhand Expressway
B	**BAYS**						
1	419 MAIN BAY - 50 MVAR BUS REACTOR NO 1 AT 400KV AMARGARH(NRSS XXIX) AND 400KV BUS 2 AT AMARGARH(NRSS XXIX)	BAY	NRSS XXIX	07-07-2020	09:34	498	CEA clearance awaited
2	40452B MAIN BAY - 400KV SURATGARH(RVUN)-RATANGARH(RS) (RS) CKT-1 AT Ratangarh(RS)	BAY	RRVPNL	25-12-2020	17:05	326	Emergency shutdown for refilling of SF6 gas in R-phase of Circuit Breaker. Later leakage found. Revival delayed due to non-availability of required spare parts.
3	400 KV Kadarpur (GPTL) - Bus 1	BUS	GPTL	17-04-2021	13:18	213	E/S/D taken due to abnormal humming sound observed from 400KV B-phase BUS-1 CVT at Kadarpur.
4	402 TIE BAY - 400KV KURUKSHETRA-SONIPAT (PG) CKT-2 AND FUTURE AT Sonipat(PG)	BAY	POWERGRID	29-10-2021	12:38	18	For attending CB trouble alarm in 402 tie bay.
5	70452B MAIN BAY - 765 KV AJMER(PG)-PHAGI(RS) (PG) CKT-2 AT PHAGI (POWERGRID)	BAY	POWERGRID	30-10-2021	13:35	17	For attending sudden SF6 gas leakage detected in G-42 compartment (Y-phase CT).
6	704-52A MAIN BAY - 765 KV ANTA-PHAGI (RS) CKT-1 (RRVPNL) AT 765KV ANTA(RS)	BAY	RRVPNL	23-09-2021	18:04	54	Mechanical fault in the main Circuit Breaker 704-52A at Anta(RS).

S.No	Element Name	Type	Owner	Outage		Outage days	Reason / Remarks
C	**ICT**						
1	400/220 kV 315 MVA ICT 1 at Bhilwara(rs)	ICT	RRVPNL	12-05-2019	23:42	919	Oil leakage in transformer. Expected revival in Dec-2021.
2	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	ICT	UPPTCL	13-03-2020	02:46	614	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover. To be replaced by 500 MVA ICT. Expected revival in Dec-2021.
3	400/220 kV 315 MVA ICT 2 at Bawana(DV)	ICT	DTL	30-03-2021	17:35	231	400kV side B-phase bushing blasted. Tripped on differential protection, REF protection. ICT catches fire and damaged.
4	400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP)	ICT	UPPTCL	19-08-2020	16:30	455	500 MVA ICT-I also got damaged due to fire in ICT-II, for protection testing. Expected revival in Oct-2021.
5	400/220 kV 315 MVA ICT 2 at Mundka(DV)	ICT	DTL	20-09-2019	00:419	789	Due to fire in ICT.
6	400/220 kV 315 MVA ICT 2 at Parbati Pooling Banala(PG)	ICT	POWERGRID	31-10-2021	15:50	16	DGA violation has found in 400/220KV 315MVR ICT-2 (B-Phase) at GIS Banala. During testing of transformer oil Acetylene (17.7ppm) and Hydrogen (132ppm) have increased beyond the violation limits.
7	400/220 KV 315 MVA ICT 2 AT BHILWARA(RS)	ICT	RRVPNL	01-11-2021	10:24	16	For Necessary testing of transformer by protection wing
D	**BUS REACTOR**						
1	80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SJ)	BR	SJVNL	17-10-2019	12:58	761	Flashover/Fault in 80MVAR Bus Reactor cleared by Bus Bar Protection. Expected revival in Nov-2021.
E	**FSC**						
1	FSC(40%) of 400 KV Kanpur-Ballabhgarh (PG) Ckt-2 at Ballabhgarh(PG)	FSC	POWERGRID	23-10-2021	13:37	24	Bypassed due to operation of R-phase capacitor unbalance protection.

F	GENERATING UNITS					
S.No	Station	Owner	Outage Reason	Outage Date	Outage Time	Outage duration(in days)
1	40 MW Sewa-II HPS - UNIT 2	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by Jan-2022.	25-09-2020	00:00	418
2	40 MW Sewa-II HPS - UNIT 3	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by Jan-2022.	25-09-2020	00:00	418
3	40 MW Sewa-II HPS - UNIT 1	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by Jan-2022.	25-09-2020	00:00	418
4	600 MW RGTPP (Khedar) - UNIT 2	HVPNL	Capital Overhauling. Expected date to be confirmed from HVPNL. Expected by Dec-2021.	02-03-2021	00:00	260
5	66 MW Pong HPS - UNIT 4	BBMB	Failure of compressed air system of Breaking. Expected by Oct-2021 end.	28-07-2021	15:00	111
6	250 MW Chhabra TPS - UNIT 4	RRVPNL	Due to ESP structure damage	09-09-2021	00:47	69
7	250 MW Chhabra TPS - UNIT 3	RRVPNL	Due to ESP Structure damage	09-09-2021	03:00	69
8	210 MW Unchahar TPS - UNIT 2	NTPC	Over hauling	10-10-2021	00:35	38
9	270 MW Goindwal(GVK) - UNIT 2	PSPCL	Coal Shortage	17-10-2021	00:00	31