सत्यमेव जयते

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

सं: उ.क्षे.वि.स./प्रचालन/106/01/2022/ दिनांक: 12.04.2022

विषय: प्रचालन समन्वय उप-समिति की194वीं बैठक की कार्यसूची।
Subject: Agenda of 194th OCC meeting.

प्रचालन समन्वय उप-समिति की **194वीं** बैठक का आयोजन वीडियो कॉन्फ्रेंसिंग के माध्यम से दिनांक **20.04.2022** को **10:30** बजे से किया जायेगा। उक्त बैठक की कार्यसूची उत्तर क्षेत्रीय विद्युत् समिति की वेबसाइट http://164.100.60.165 पर उपलब्ध है।

बैठक में सम्मिलित होने के लिए लिंक व पासवर्ड सभी सदस्यों को ई-मेल द्वारा प्रदान किया जाएगा। कृपया बैठक में उपस्थित होने की सुविधा प्रदान करें।

194th meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **20.04.2022** from **10:30 Hrs**. The agenda of this meeting has been uploaded on the NRPC web-site http://164.100.60.165.

The link and password for joining the meeting will be e-mailed to respective e-mail IDs in due course.

Kindly make it convenient to attend the meeting.

12/04/2022.

(सौमित्र मजूमदार)
अधीक्षण अभियंता (प्रचालन)

सेवा में : प्रचालन समन्वय उप समिति के सभी सदस्य।
To : All Members of OCC

खण्ड-क: उ.क्षे.वि.स. Part-A: NRPC

1. Confirmation of Minutes

The minutes of the 193rd OCC meeting were issued vide letter of even number dated 05.04.2022.

Sub-committee may deliberate and kindly confirm the Minutes.

2. Review of Grid operations

2.1 Power Supply Position (Provisional) for March 2022

Anticipated Power Supply Position v/s Actual Power Supply Position (Provisional) of Northern Region during the month of March-2022 is as under:

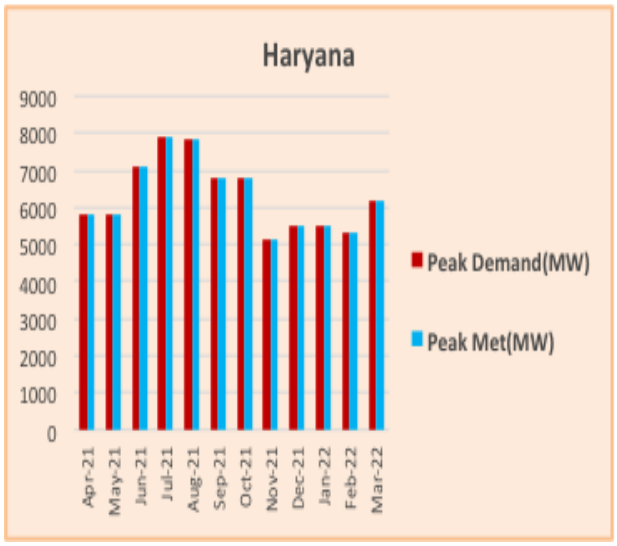
State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	110	108	-2.1%	260	220	-15.4%
	(Req)	110	108	-2.1%	240	220	-8.3%
DELHI	(Avl)	2750	2260	-17.8%	6060	4648	-23.3%
	(Req)	2050	2260	10.2%	4200	4648	10.7%
HARYANA	(Avl)	4800	4190	-12.7%	10580	7792	-26.4%
	(Req)	4100	4290	4.6%	7300	7792	6.7%
HIMACHAL PRADESH	(Avl)	936	937	0.0%	1864	1879	0.8%
	(Req)	946	941	-0.4%	1850	1879	1.6%
J&K and LADAKH	(Avl)	1220	1584	29.8%	3920	2795	-28.7%
	(Req)	1970	1728	-12.3%	3460	3095	-10.5%
PUNJAB	(Avl)	5185	4604	-11.2%	8000	8475	5.9%
	(Req)	4172	4636	11.1%	7440	8475	13.9%
RAJASTHAN	(Avl)	10289	8093	-21.3%	19000	15749	-17.1%
	(Req)	8060	8181	1.5%	15100	15749	4.3%
UTTAR PRADESH	(Avl)	10540	10922	3.6%	20000	20479	2.4%
	(Req)	10075	10966	8.8%	20000	20479	2.4%
UTTARAKHAND	(Avl)	1132	1148	1.4%	2080	2162	3.9%
	(Req)	1153	1176	2.0%	2100	2162	3.0%
NORTHERN REGION	(Avl)	36962	33845	-8.4%	74000	53600	-27.6%
	(Req)	32636	34286	5.1%	56200	54900	-2.3%

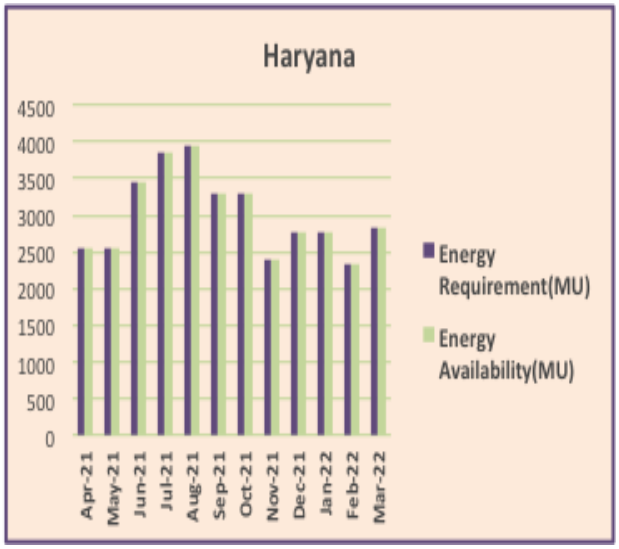
As per above, negative / significant variation (≥5%) in Actual Power Supply Position (Provisional) vis-à-vis Anticipated figures is observed for the month of March-2022 in terms of Energy Requirement for Chandigarh, Delhi, HP, UTs of J&K and Ladakh, Punjab, UP, and in terms of Peak Demand similar variation is noted for Chandigarh, Delhi, Haryana, UTs of J&K & Ladakh and Punjab. These states/UTs are requested to submit reason for such variations so that the same can be deliberated in the meeting.

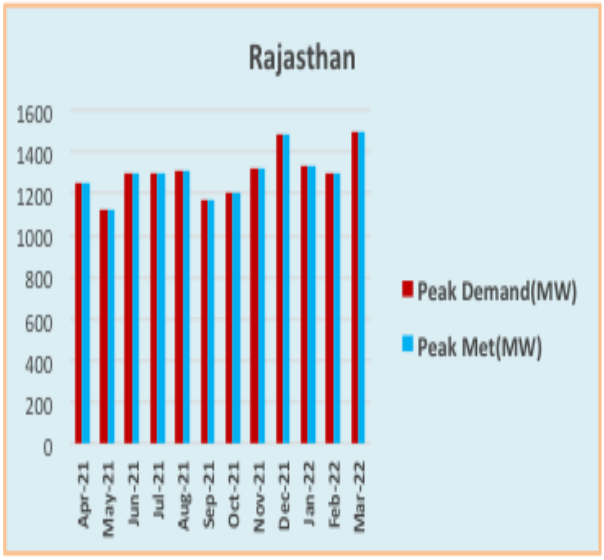
All SLDCs are requested to furnish provisional and revised power supply position in prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively for the compliance of Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.

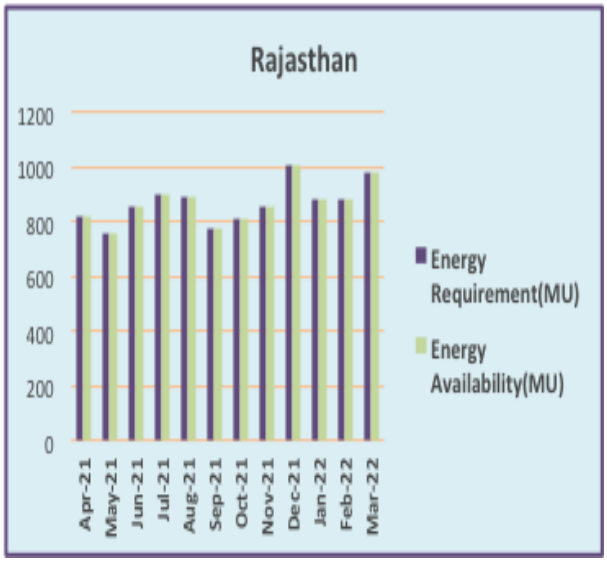
2.2 Power Supply Position of NCR

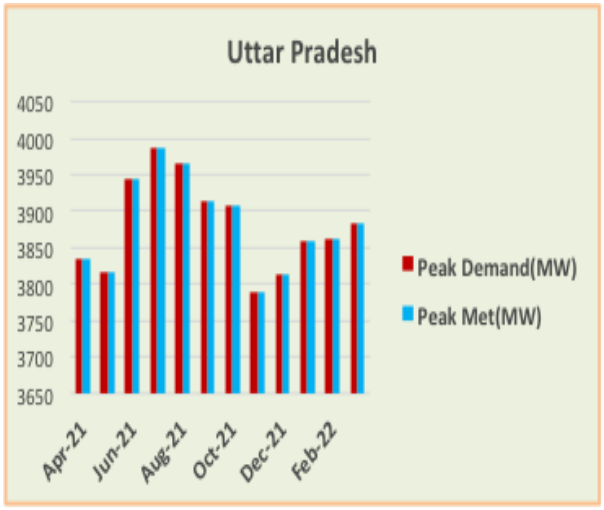
NCR Planning Board (NCRPB) is closely monitoring the power supply position of National Capital Region. Monthly power supply position for NCR till the month of March-2022 is available on NRPC website (http://164.100.60.165). Power supply position during the current financial year is shown as under:

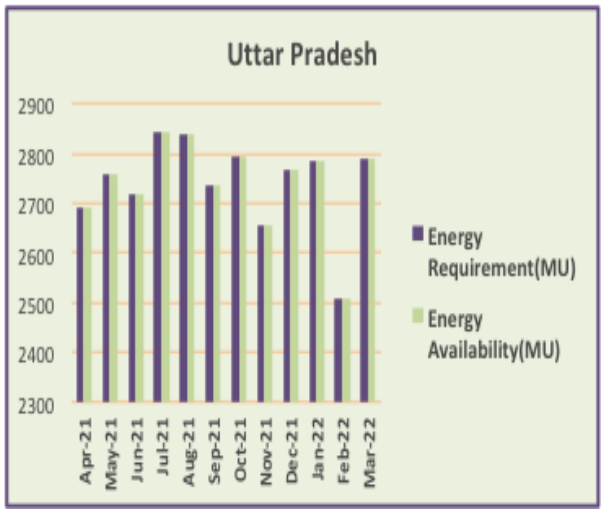


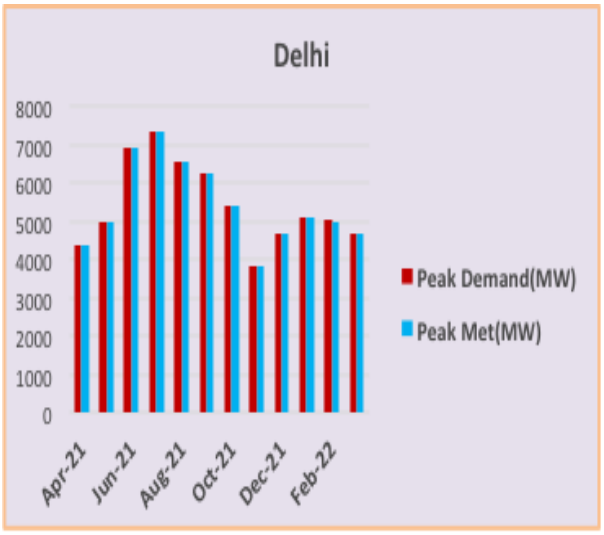


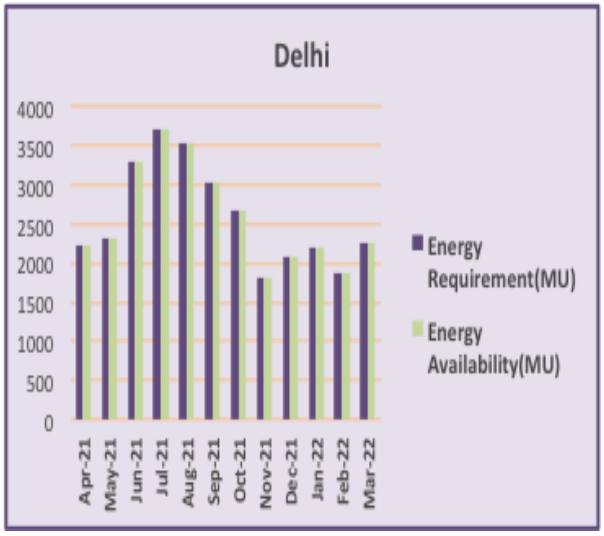












3. Maintenance Programme of Generating Units and Transmission Lines

3.1. Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of May-2022 is scheduled on 19-April-2022 via Video Conferencing.

3.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of May-2022 is scheduled on 19-April-2022 via Video conferencing.

4. Planning of Grid Operation

4.1. Anticipated Power Supply Position in Northern Region for May 2022

The Anticipated Power Supply Position in Northern Region for May 2022 is as under:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)
CHANDIGARH	Availability	150	410
	Requirement	120	360

State / UT	Availability / Requirement	Revised Energy	Revised Peak (MW)
	Surplus / Shortfall	30	50
	% Surplus / Shortfall	25.0%	13.9%
DELHI	Availability	2700	6220
	Requirement	3550	6900
	Surplus / Shortfall	-850	-680
	% Surplus / Shortfall	-23.9%	-9.9%
HARYANA	Availability	5560	11560
	Requirement	5620	9870
	Surplus / Shortfall	-60	1690
	% Surplus / Shortfall	-1.1%	17.1%
HIMACHAL PRADESH (Revised on 08.04.2022)	Availability	931	1580
	Requirement	923	1570
	Surplus / Shortfall	8	10
	% Surplus / Shortfall	0.9%	0.6%
J&K and LADAKH	Availability	1870	3520
	Requirement	1780	2880
	Surplus / Shortfall	90	640
	% Surplus / Shortfall	5.1%	22.2%
PUNJAB	Availability	5950	11970
	Requirement	4760	8930
	Surplus / Shortfall	1190	3040
	% Surplus / Shortfall	25.0%	34.0%
RAJASTHAN	Availability	9280	18790
	Requirement	8590	14000
	Surplus / Shortfall	690	4790
	% Surplus / Shortfall	8.0%	34.2%
UTTAR PRADESH (Revised on 11.04.2022)	Availability	13330	24000
	Requirement	12989	24000
	Surplus / Shortfall	341	0
	% Surplus / Shortfall	2.6%	0.0%
UTTARAKHAND (Revised on 06.04.2022)	Availability	1062	2180
	Requirement	1085	2250
	Surplus / Shortfall	-23	-70
	% Surplus / Shortfall	-2.1%	-3.1%
NORTHERN REGION	Availability	40833	74100
	Requirement	39417	65300
	Surplus / Shortfall	1416	8800
	% Surplus / Shortfall	3.6%	13.5%

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of May-2022 and submit the measures proposed to be taken to bridge the gap between demand & availability, as well to dispose-off the surplus, if any, in the prescribed format.

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	Feb-2022
HIMACHAL PRADESH	Apr-2018	Feb-2022
PUNJAB	Apr-2018	Jan-2022
RAJASTHAN	Apr-2018	Jan-2022
UTTAR PRADESH	Apr-2018	Jan-2022
UTTARAKHAND	Apr-2018	Dec-2021

All the remaining UTs viz., J&K and Ladakh and Chandigarh are requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the format given as under:

Category→	Consumption by Domestic Loads	Consumption by Commercial Loads	Consumption by Agricultural Loads	Consumption by Industrial Loads	Traction supply load	Miscellaneous / Others
<Month>						

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

6.1 In the 45th TCC/ 48th NRPC meeting, it was 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. In the meeting, CPRI representative had stated that as there were diversified network configurations at the level of DISCOMs, the guidelines to be provided would be generalized and may also include some empirical formula along with examples which may guide the DISCOMs for finding out the capacitor requirement.

6.2 Based on the above deliberation, CPRI submitted the system study report (enclosed in the agenda of 177th OCC meeting) and which was circulated among all the SLDCs and STUs vide e-mail dated 02.11.2020.

6.3 In the 177th OCC meeting, representatives of Punjab, Rajasthan, Delhi and Haryana stated that the capacitors considered in the study were far less than already installed. In the meeting, it was decided that states shall first analyze the PSSE file considered by CPRI in its study and bring out the locations wherein capacitors are already installed in the network, but are not modelled along with their comments.

6.4 The list of bus-wise available MVAr and the additionally required MVAr computed in the CPRI report was shared separately by NRPC Sectt with SLDCs of Punjab, Haryana, Rajasthan, Delhi and Uttarakhand on 07.01.2021 with the request to provide available MVAr values in those buses. In 179thOCC meeting, it was decided that any submission of MVAr data / feedback from the states would be would be allowed till 22.01.2021 and thereafter CPRI would conduct the modelling and simulation work for the purpose of final capacitor study report. Accordingly, feedbacks received from Punjab, Rajasthan, Haryana and Delhi was forwarded to CPRI for carrying out study and submission of report.

6.5 CPRI has submitted the revised 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.

6.6 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 Committee 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.

6.7 In the 181st OCC meeting, the sub-group comprising of ten members was advised to study the CPRI report and submit its recommendation within two weeks.

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

6.9 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.

6.10 In the 183rd OCC, NRPC representative informed that the meeting of sub-group was held on 03.05.21 (in place of originally schedule meeting on 30.04.21, delayed as per request of some sub-group members due to health-related concerns). Representative from Rajasthan could not attend as she was suffering from covid-19 while Uttarakhand representative informed in the meeting that there is an acute shortage of available officers at this time and they will agree to the remarks made by NRLDC. Further, PSSE file was requested from CPRI as per request of all sub-group members for better understanding and the same was shared with them.

6.11 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. Rajasthan representative was requested to send their observation/comments via e-mail to NRPC Sectt. at the earliest.

6.12 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.

6.13 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. 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. Forum decided that a reminder may be sent to CPRI for submission of corrected Report as two weeks has already passed.

6.14 In 185th OCC, NRPC representative intimated the forum that CPRI has submitted its point-wise reply on the observations of sub-group along with updated report on 28th June 2021.

6.15 MS, NRPC expressed concern over inordinate delay in finalizing the report. Forum decided that issues highlighted by the sub-group in the report and clarifications/comments thereon of CPRI need to be converged at the earliest and thus a video-conferencing meeting may be held between the sub-group and CPRI for resolution of issues and enabling report finalization.

6.16 The meeting was held on 06.08.2021 at 11:00 a.m. under the chairmanship of MS, NRPC through Video Conferencing. It was attended by members of the sub-group (constituted for studying the CPRI report), CPRI representatives, and officials from NRPC Sectt & NRLDC.

6.17 In the meeting, comments of the sub-group on the latest version of CPRI report was deliberated in detail. After weighing the merits of the original & both 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 basecase 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.

6.18 Base case file (11.07.2018 00:45 hrs) and CPRI September 2020 report has been e-mailed to all sub-group members on 10.08.2021 requesting to submit comments/observations thereon latest by 24.08.2021 as per decision of the meeting dtd. 06.08.2021.

6.19 In the 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.

6.20 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.

6.21 In the meeting, UP representative stated that they will send reply on mail of NRPC Sectt. dtd. 10.08.2021 for submission of their comments.

6.22 It was decided that data received at NRPC Sectt. may be sent to NRLDC for tuning of base-case.

6.23 NRLDC representative stated that base-case tuning may be completed by 30.09.2021.

6.24 CPRI vide e-mail dtd. 23.09.2021, requested to send comments at the earliest. NRPC Sectt. vide e-mail dtd. 23.09.2021 apprised the CPRI that as per decisions

6.25 of meeting dtd. 06.09.2021, tuning of base-case file is being done by NRLDC so

6.26 that no new issue arises in future.

6.27 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.

6.28 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.

6.29 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.

6.30 In 188th OCC meeting, 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.

6.31 NRLDC vide e-mail dtd. 10.11.2021 submitted the tuned base-case to NRPC Sectt. mentioning that Basecase has been tuned considering the feedback/inputs received from states (Punjab, Delhi, Rajasthan, HP and UP) and considering NRLDC SCADA data of 11th July 2018.

6.32 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.

6.33 In 190th OCC, NRPC representative informed that tuned base-case along with comments of states has been sent to CPRI vide mail dtd 30.11.2021 for correction in the report.

6.34 In 191st OCC, NRPC representative apprised the forum that a meeting was held between members of the sub-group (constituted for studying the CPRI report), CPRI representatives, and officials from NRPC Sectt & NRLDC.on 05.01.2022, wherein it was decided that CPRI shall tune the Qgen value taking help of NRLDC. Tuning may be done for some machines of Punjab (such as Talwandi Sabo), Uttarakhand (such as Shravanti), Himachal Pradesh, and Jammu. CPRI shall also tune Q_{gen} of Central Sector machines such as Salal, Rampur, Bhakra, Dehar etc. These Q_{gen} tunings shall be done in spirit to relieve machines from absorbing MVARs and to avoid over compensation in system due to recommended capacitors. CPRI has intimated 20th Jan'22 as target date for the activity.

6.35 CPRI vide mail dtd. 20.01.2022 intimated that tuning has been done as per decisions of meeting dtd. 05.01.2022 and requested NRLDC for tuning reactive power absorption of central generation in HP and JK. CPRI had submitted study results also in the same mail.

6.36 The study result was sent to NRLDC vide mail dtd 24.01.2022 for comments, if any.

6.37 NRLDC intimated vide mail dtd 03.02.2022 for requirement of tuning of following units

i. Himachal Pradesh: Baspa, Dulhasti, Jhakri, Koldam, Karcham

ii. Jammu & Kashmir: Baglihar, Salal, Uri-I,Uri-II

iii. ISGS: Dadri-C and Dadri NCR

NRLDC also suggested that after compensation, voltage at some of the nodes are exceeding 1.01 p.u. which need to avoid. Further, if in base-case, pre compensated voltage is less than 1.0 p.u, it should be ensure that after compensation it shouldn't exceed 1.01 p.u.

6.38 Comments of NRLDC was sent to CPRI vide mail dtd. 03.02.2022 for necessary action.

6.39 Reply from CPRI vide mail dtd. 04.02.2022 is attached at Annexure-A.0 of Agenda of 192nd OCC. It is also highlighted that the tuned file has reached at a stage, where any further tuning in reactive power exchange from any one generator is resulting supply/absorption by nearby connected generating units.

6.40 CPRI has been instructed vide mail dtd. 05.02.2022 to prepare report and submit within a week's time.

6.41 NRPC Sectt. vide mail dated 02.03.2022 have shared the study report of CPRI, with states.

6.42 In 52nd NRPC meeting, NRPC Board gave approval for payment of Rs. 14 Lakh (excluding GST) to CPRI for the system study conducted by them.

Sub-Committee may kindly note.

7. Automatic Demand Management System

7.1 The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:

State/ Utility	Status
Punjab	**Scheme not implemented.** At SLDC level, remote tripping of 100 feeders at 66 kV is possible. At 11 kV feeder level, ADMS is to be implemented by Distribution Company.
Delhi	**Fully implemented** by TPDDL, BRPL and BYPL. NDMC implementation was scheduled to be completed by 31.03.2020 but got delayed due to some changes incorporated in the scheme.
Rajasthan	**Under implementation.** LoA placed on 12.12.2018 with an execution period of 18 months for ADMS at the level of 33 kV feeders at EHV Substation of RVPN under SCADA / EMS part of project. Supply is in progress. Work is under execution and likely to completed by June'2021. ADMS functionality at 11 kV feeders from 33/11 kV substation is

State/ Utility	Status
	under the jurisdiction of the DISCOMs.
UP	**Scheme implemented by NPCL only.** Remote operation of 50 feeders at 132 kV level being operated from SLDC. Further, the solution proposed by M/s Siemens was found to be non-economical and was not accepted by the management. Noida Power Company Ltd have implemented Intelligent Load Shedding (ILS) scheme, in compliance of IEGC requirements for automatic demand management.
Haryana	**Scheme not implemented.** More than 1700 feeders were tested from SLDC control room for remote operation. Regarding the implementation of ADMS at DISCOM level, the matter is being taken up with the DISCOMs.
HP	**Scheme not implemented.** 02 feeders could be operated from SLDC through manual intervention. Letter has been sent by HPSEB to HP-SLDC for making its operation automatic.

7.2 As decided in the 175th OCC meeting, the nominations for matter specific meeting has been received from HVPN, UHBVN/DHBVN, PSPCL, RVPN (SLDC & Automation), UPPTCL, KESCO (DISCOM-UP), NPCL (DISCOM-UP).

7.3 Meetings on ADMS implementation road map have been held with the officers of Haryana, Himachal Pradesh, 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.

7.4 As per 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.

7.5 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.

7.6 MS, NRPC stated that non-implementation of ADMS by states is indistinguishably non-adherence to directions of CERC.

7.7 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 dtd. 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

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

7.9 In 187th OCC meeting, NRLDC representative quoted the texts of CERC order dtd. 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.

7.10 In the 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.

7.11 In the 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.

7.12 In 189th OCC, 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.

7.13 In 190th OCC, NRLDC representative informed that vide letter dated 09.12.2021 (enclosed as Annexure-A.I of 190th OCC Minutes), CERC has been apprised about the latest status of ADMS as per the updated information available with them.

***Members may kindly note*.**

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

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

All utilities are requested to update the status.

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 respective states would submit MIS report before every OCC meeting so that same may be discussed. 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.

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

9.4. 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 189th OCC agenda.

9.5. In 189th OCC, NRPC representative highlighted no progress from states of Punjab, Uttarakhand, Himachal, J&K, Ladakh.

9.6. In the meeting, UP and Punjab representatives stated that they have sent the offer along with data to CPRI for study of Islanding Schemes. HP intimated that system study is under process at DISCOM end. Rajasthan SLDC assured the submission of RAPS SCADA display on the same day.

9.7. 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.

9.8. 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.

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

9.10. 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.

9.11. In the 190th OCC, NRPC representative informed that SOP data in respect of Delhi and RAPS have been received.

9.12. UPSLDC vide email dated 01.12.2021 has submitted the names of islands for which system study from CPRI is required. UPSLDC has highlighted, *inter-alia*, that involvement of long length 765kV line and high number of buses necessitates them to go for system study by CPRI. It has mentioned that SLDC/STU has no expertise in such studies and before doing any investment on the project, proper study is must for successful implementation and operation of Islands.

9.13. HPSLDC vide letter dtd. 18.12.2021 has intimated that a meeting was held on 26.11.2021 between HPSLDC and HPSEBL wherein a team of officers from HPSLDC and HPSEBL has been formed to carry out transient study of all islands within a month.

9.14. In 190th OCC, UPSLDC representative informed that CPRI has asked for some additional details and technical commercial offer would be provided to them by CPRI by 15th Jan 22.

9.15. NRLDC representative informed that report received from Rajasthan regarding the Jodhpur-Barmer-Rajwest islanding scheme and Suratgarh islanding scheme is in order and Rajasthan SLDC can proceed ahead. Further, NRLDC submitted that they use PSSE software for system study but Rajasthan has submitted details of Islands in MI Power Software, therefore, they are not able to access the file.

9.16. Rajasthan SLDC representative informed that they have given the details in the hard copy of the load and generation to be considered for islanding scheme, and

based on that have requested NRLDC to simulate it in PSSE software for validation. NRLDC representative agreed to the request of the Rajasthan SLDC.

9.17. Uttarakhand SLDC representative informed that hydro stations near Dehradun are peaking stations and the proposed Dehradun islanding scheme appears to be infeasible. NRPC representative informed that some schemes in NR have been proposed by considering Hydro stations and Dehradun islanding scheme was proposed by the state SLDC itself in view of all factors. Thus, Uttarakhand SLDC shall immediately conduct study on the proposed Islanding Scheme having Khodri & Chibro units and provide status on the feasibility of scheme with supporting data so that same may be communicated to the Ministry.

9.18. In 191st OCC, HPSLDC representative informed that they need further two weeks to submit the outcome of transient study of all islands.

9.19. Uttarakhand representative informed that major hydro stations e.g. Chibro, Khodri etc at Dehradun Region in Yamuna valley are non-must run and peaking stations. Therefore, it is technically not feasible to implement Dehradun as an islanding scheme. However, nominations of nodal officers from various utilities (PTCUL, UJVN Ltd & UPCL) are being sought for the formation of internal committee for accessing the possibility of Dehradun as Islanding scheme and the report shall be submitted to NRPC Secretariat subsequently.

9.20. NRPC representative asked Uttarakhand to expedite the submission regarding the status on feasibility of the proposed Islanding scheme.

9.21. MS, NRPC stated that all constituents that have given their information about the planning of islanding scheme shall take up the work on top priority and submit the progress in time bound manner by submitting the updated MIS format every month.

9.22. NRLDC representative informed that Rajasthan SLDC is modelling data on PSSE software and it is expected to be completed within one week. Thereafter, NRLDC will submit its comments on the same. Rajasthan representative consented for the same.

9.23. UP and Punjab were asked to update the status of their study being done by CPRI. Both informed that there is no progress since last OCC and they are waiting for response from CPRI.

9.24. A meeting was convened by HPSLDC with officials of NRPC Sectt., NRLDC, HPSEBL, & HPPTCL on 11.02.2022 for apprising the status on implementation of Islanding scheme and MoM of the same is awaited. In the meeting, it was observed that system study work has been pending due to pre-occupation of the concerned resource. Therefore, it was decided that HPSLDC shall write letters to MDs of HPSEBL & HPPTCL for expediting the implementation and NRPC Sectt may be kept in copy so that the matter may be apprised to MoP in next review meeting. Further, it was decided to review the status in another meeting in the first week of March 22.

9.25. HPSLDC convened a meeting with the officials of NRPC Sectt., NRLDC, HPSEBL & HPPTCL on 04.03.2022 and presented the results of static and dynamic study of the islanding scheme in the HP control area.

9.26. A meeting was convened by UPSLDC with officials of NRPC Sectt., NRLDC & UPPTCL on 07.03.2022 to review progress of implementation of Unchahar and Agra

Islanding schemes and MoM of the same is awaited.

9.27. In the 193 OCC meeting, Punjab and J&K representative were requested to convene a meeting in the last week of March with the officials of NRPC and NRLDC to deliberate about the updated status of the islanding scheme in their control area.

Latest status of Islanding Scheme of NR is attached as **Annexure-A.II.**

Members may kindly deliberate.

10. Coal Supply Position of Thermal Plants in Northern Region

10.1. In 186th OCC meeting, it was agreed that coal stock position of generating stations in northern region may be reviewed in the OCC meetings on the monthly basis.

10.2. Accordingly, coal stock position of generating stations in northern region during current month (till 10th April 2022) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	88.86	17	5.7
ANPARA TPS	2630	87.60	17	11.2
BARKHERA TPS	90	6.97	26	9.0
DADRI (NCTPP)	1820	40.18	26	7.0
GH TPS (LEH.MOH.)	920	39.05	26	12.8
GOINDWAL SAHIB TPP	540	41.15	26	**0.9**
HARDUAGANJ TPS	1265	24.33	26	**3.7**
INDIRA GANDHI STPP	1500	66.78	26	8.4
KAWAI TPS	1320	84.51	26	**2.9**
KHAMBARKHERA TPS	90	7.97	26	9.9
KOTA TPS	1240	72.12	26	5.9
KUNDARKI TPS	90	5.61	26	10.3
LALITPUR TPS	1980	49.45	26	8.3
MAHATMA GANDHI TPS	1320	43.65	26	25.5
MAQSOODPUR TPS	90	2.51	26	15.5
MEJA STPP	1320	45.36	26	22.3
OBRA TPS	1094	51.19	26	7.8
PANIPAT TPS	710	75.85	26	6.9
PARICHHA TPS	1140	41.90	26	**0.9**
PRAYAGRAJ TPP	1980	61.44	26	14.3
RAJIV GANDHI TPS	1200	37.62	26	14.9
RAJPURA TPP	1400	84.04	26	16.9
RIHAND STPS	3000	90.54	17	30.7
ROPAR TPS	840	48.00	26	13.4
ROSA TPP Ph-I	1200	38.76	26	**1.6**

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
SINGRAULI STPS	2000	95.00	17	19.6
SURATGARH TPS	1500	59.74	26	6.6
TALWANDI SABO TPP	1980	63.60	26	**0.8**
TANDA TPS	1760	74.38	26	6.9
UNCHAHAR TPS	1550	68.25	26	**2.6**
UTRAULA TPS	90	0.36	26	10.2
YAMUNA NAGAR TPS	600	91.88	26	7.4
CHHABRA-I PH-1 TPP	500	85.84	26	**0.2**
KALISINDH TPS	1200	85.08	26	**1.1**
SURATGARH STPS	1320	0.00	26	5.7
CHHABRA-I PH-2 TPP	500	40.87	26	6.6
CHHABRA-II TPP	1320	75.88	26	**2.4**

11. Appraisal report of NRPC regarding Installation/ Re-shuffling Programme of 33kV Shunt Capacitor Banks at various GSS of RVPN (Agenda by RRVPNL)

11.1. RRVPNL vide letter dated 30.03.2022 (Copy of the letter is attached as **Annexure-A.III**.) have submitted a proposal for installation of additional 33kV Shunt Capacitor Banks of Jaipur/Ajmer/Jodhpur Zone for FY2021-22.

11.2. RRVPNL has intimated vide aforesaid letter that complete case has been sent to NLDC, POSOCO in Dec, 2021 for funding of scheme from PSDF; however, CE(NPC) has raised an observation to provide appraisal report of NRPC on this matter.

Members may kindly deliberate.

12. Calibration and testing of Interface Energy Meters installed at Generating stations. (Agenda by NHPC)

12.1 NHPC vide mail dated 12.04.2022 (Copy of the letter is attached as **Annexure-A.IV**.) has requested that OCC forum may issue a guideline to fix the responsibility for carrying out the calibration/testing of SEMs which are owned by PGCIL/CTU.

Members may kindly deliberate.

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

13. NR Grid Highlights for March 2022

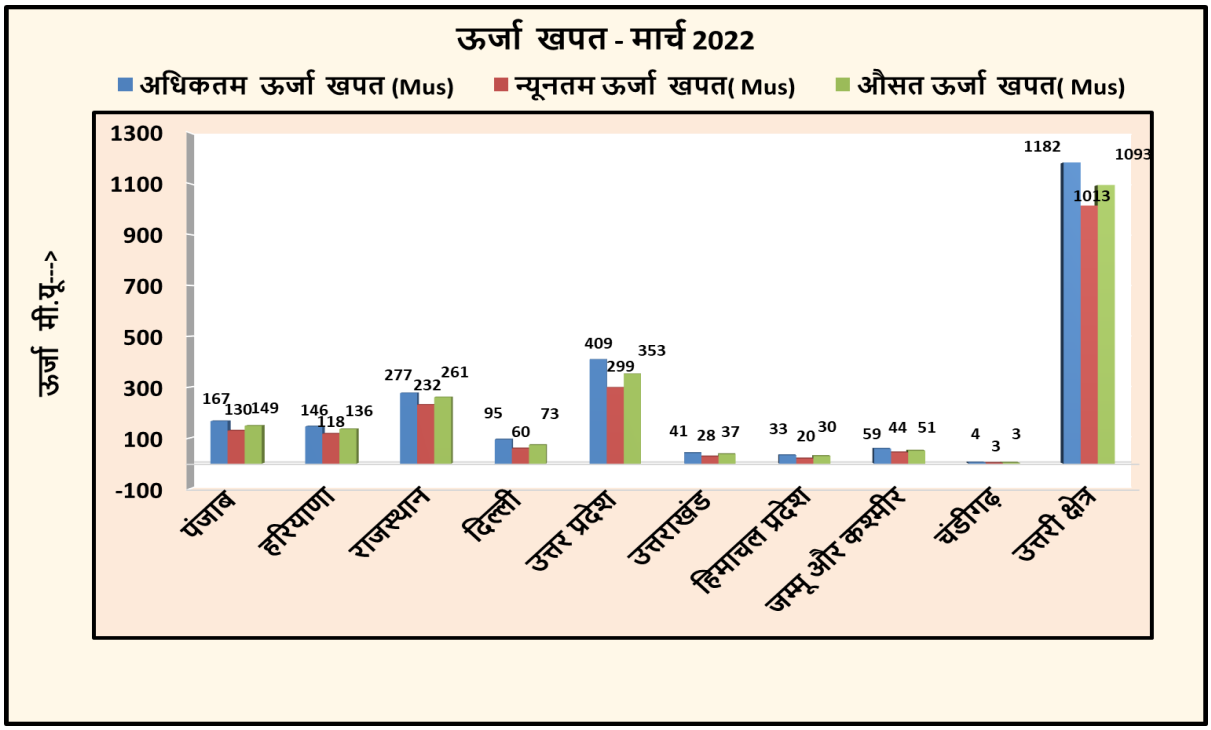
Maximum energy consumption of Northern Region was 1182.02 Mus on 31st Mar'22 and it was 10.65 % higher than Mar' 2021 (1068.28 Mus 11th Mar'21)

Average energy consumption per day of Northern Region was 1093.38 Mus and it was 9.58 % higher than Mar'21 (997.79 Mus per day)

Maximum Demand met of Northern Region was 53577 MW on 21st Mar'22@ 20:00 hours (Based on data submitted by Constituents) as compared to 52576 MW on 5th Mar'21 @ 10:00 hours

Northern Region all time high value recorded in March'22:

	All Time High Record		Previous Record (upto Feb-22)	
	Value (MU)	Achieved on	Value (MU)	Achieved on
Solar Generation	103.67	31.03.22	91.5	12.02.22



Comparison of Average Energy Consumption (MUs/Day) of NR States for the Mar'21 vs Mar '22

क्षेत्र/राज्य	मार्च- 2021	मार्च-2022	% अंतर
चंडीगढ़	3.20	3.473	8.65
दिल्ली	67.00	73.156	9.19
हिमाचल प्रदेश	30.14	29.993	-0.50
हरियाणा	128.53	135.506	5.42
जम्मू और कश्मीर	50.20	51.087	1.77

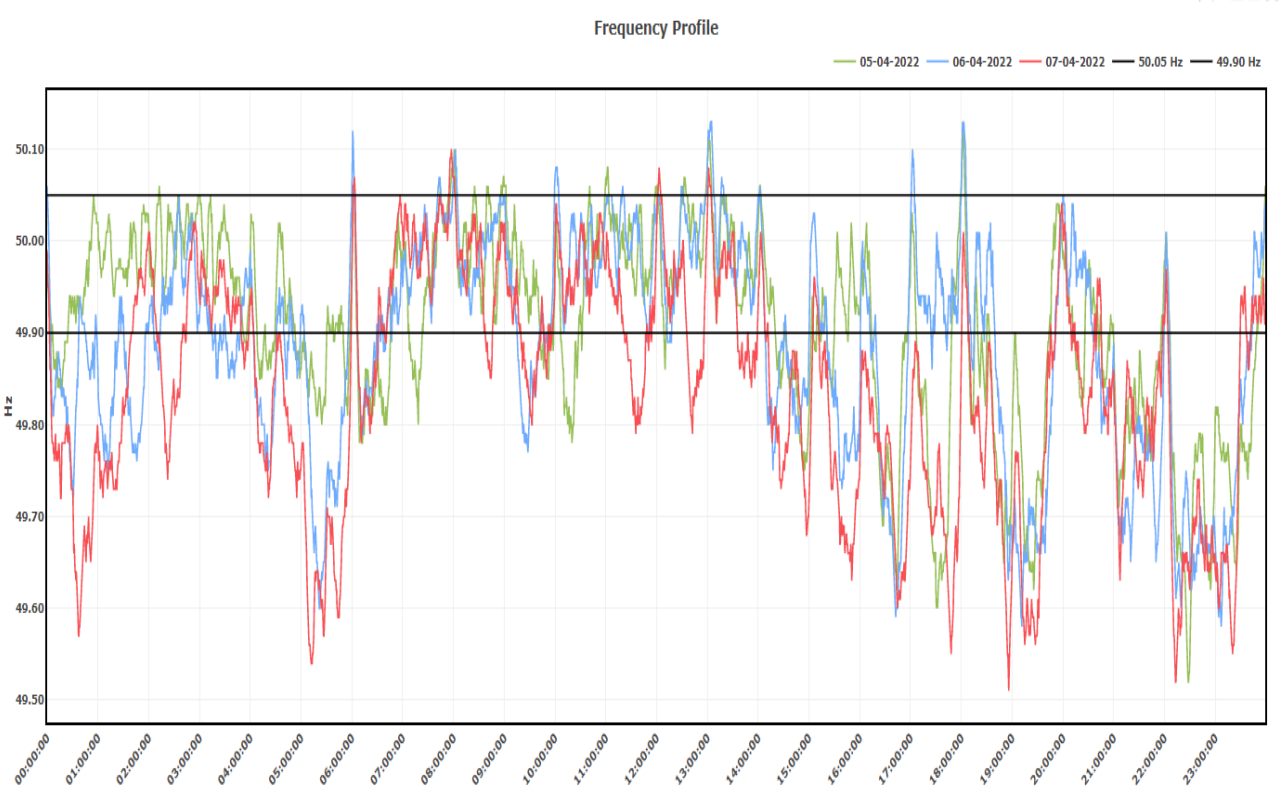
क्षेत्र/राज्य	मार्च- 2021	मार्च-2022	% अंतर
पंजाब	130.45	148.942	14.17
राजस्थान	234.13	261.125	11.53
उत्तराखंड	36.82	37.397	1.56
उत्तर प्रदेश	317.32	352.702	11.15
उत्तरी क्षेत्र	**997.80**	**1093.380**	**9.58**

Frequency Data Comparison

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90(%time)	49.90–50.05(%time)	>50.05(% time)
Feb'22	50.00	50.26	49.54	6.0	76.8	17.2
Mar'22	49.98	50.30	49.54	14.50	**73.42**	12.10

In Mar'22, frequency remained within IEGC band for only 73.42% of the time. Long generation outage or any other contingency event, could result in further drop in frequency and therefore, over drawals below 49.90 Hz must be controlled quickly in order to keep system secure. All utilities are requested to follow all the measures described in subsequent agenda points.

As deliberated in 193 OCC meeting, NR demand has been increasing and is likely to increase further in coming days and therefore keeping system parameters within operational band is extremely important as any laxity could prove to be very costly for the Grid. For the last few days, system frequency is running below the operational band for considerable percentage of time especially during afternoon and night hours. Frequency profile for the few days of April (05-07 April 2022) is given below:



Date	Min Freq	Min Freq Time	Max Freq	Max Freq Time	Avg Freq	FVI	SD	Below Band	Within Band	Above Band
09-04-2022	49.5	23:30:00	50.21	13:03:30	49.92	0.219	0.123	39.2	51.8	9.1
08-04-2022	49.58	05:25:30	50.24	13:05:50	49.94	0.162	0.111	35	54.3	10.7
07-04-2022	49.51	18:55:50	50.11	07:57:20	49.84	0.415	0.126	62.7	35.9	1.4
06-04-2022	49.58	23:07:10	50.14	13:03:10	49.89	0.269	0.118	48	47.9	4.2
05-04-2022	49.52	22:27:50	50.14	18:01:40	49.91	0.206	0.109	41.3	54.7	4
04-04-2022	49.58	19:15:20	50.16	08:02:50	49.95	0.107	0.089	25.6	68.1	6.3

As visible from above plots, frequency profile has sharply deteriorated in last 1-2 weeks. The main reason for the above poor frequency profile is high over drawal by the some of the states including NR states such as J&K and Haryana. Accordingly, radial feeders for these states were opened by NRLDC to restrict decline in frequency and limit over drawl of these states.

The power prices in country have also gone very high in view of high demand & congestion. Therefore, maximizing all the internal generation as well as load management is necessary for safe and secure operation of the Grid.

All the concerned are requested to strictly take actions and avoid over drawal from Grid for safe & secure operation of the Grid. Therefore, the following is requested:

1. Managing the demand portfolio and making prearrangements for procurement of power and ensuring portfolio balancing through STOA/RTM market segments
2. More units shall be kept on bar in order to meet the increased demand safely as well as maintaining reserves
3. Keeping sufficient coal stock and maintaining adequate reserves.
4. Restricting deviations from schedule and ensuring no under injection by the generators from schedule.
5. Advance action is required for bringing the units on bar to avoid situation such as encountered in March/ April 2022.
6. Ensure that ADMS is in service and expedite its implementation if not commissioned.
7. Ensure healthiness and availability of AUFLS and df/dt load shedding.
8. In case of inadequate margins in intrastate generators measures for emergency load regulation measures may be taken in interest of grid security.
9. Pursue generators to expedite revival of thermal units under forced outage wherever feasible.

In this case, the list of radial feeders become very important. Utilities have been requested number of times to update list of radial feeders which can be opened on the directions of NRLDC to regulate the demand. List of such radial feeders has been provided by respective utilities and is part of 'Operating Procedure of Northern Region'. Latest list of radial feeders is also attached as **Annexure-B.I**. Following are the attributes for such feeders:

- Feeders shall be radial in nature
- They should usually have substantial load flow so that reduction of drawal can be prominently noticed on opening of such lines.
- such feeders are not part of any other scheme such as any SPS, UFR or df/dt actuated shedding

The opening of feeders is generally an extreme step which shall be required in case of threat to grid security and non-adherence to RLDC instructions to manage overdrawl by SLDCs/ DISCOMs. In such a case, every utility needs to take actions to support RLDC by following their instructions including opening of feeders.

SLDCs are once again requested to review and share the list of the following:

- Intrastate 132kV feeders and 220/132 kV and 132kV / 33 kV transformers which supply load radially within the state and can be disconnected at the instruction of SLDC
- Tie lines which supply load radially within the state, which can be switched off from the substation belonging to a different entity, at the instruction of RLDC
- 400/220kV and 220/132kV ICTs at state boundary, which cater load radially and can be switched off from the substation belonging to ISTS or other entity

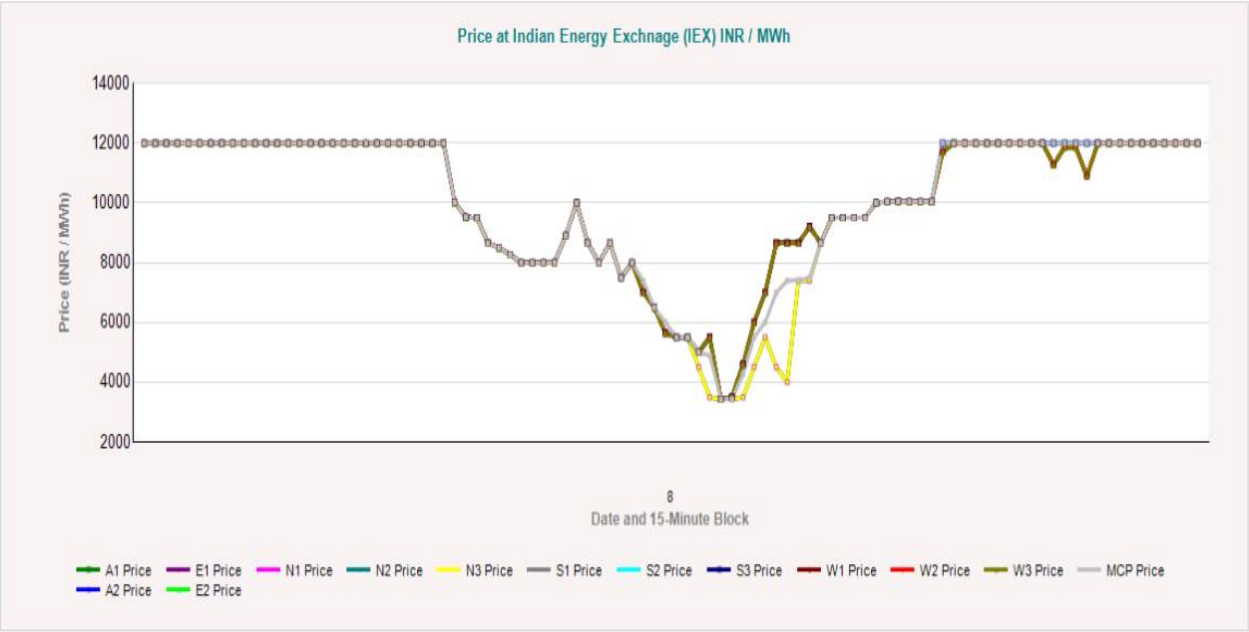
Utilities may also intimate in case no radial feeders are available to disconnect. In such a case, NRLDC along with constituent will study the grid connected feeders /ICTs for disconnection which has low impact in the NR Grid. For such states, it is requested to nominate one nodal officer from SLDC which shall coordinate with NRLDC and study about such feeders.

Telemetry is to be ensured for all such feeders for monitoring in real time by SLDC/ NRLDC. States are also advised to take remedial measures for minimizing sustained over drawal at low frequencies as per the IEGC.

JK SLDC vide their email dated 10.04.2022 have intimated that following 220kV lines are proposed to replace the existing list (attached) for physical regulation:

- 220kV D/C Samba-Hiranagar (upto 200MW)
- 220kV New Wampoh-Mirbazar (upto 200MW)

Recently, the market prices have also started showing trends as per the solar generation pattern. Market prices for 8th April 2022 is shown below:



From the plot, it can be seen that the market prices in day-time are much lower than rest of the day. For some time, there is even in constraint in NR-WR export leading to market splitting and cheaper power in Northern region as compared to rest of the country. States need to take cues from this and try and shift their maximum load during day-time. In the coming years, with increasing solar generation, the prices during day are likely to dip further whereas they may be much higher during evening, night and morning hours. Therefore, a major portion of DISCOM load especially agricultural load may be shifted to day-time.

Members may like to discuss.

14. Summer preparedness 2022

As discussed in 193 OCC meeting, due to extreme weather conditions, high demand is observed during summer/monsoon months in Northern region. Along with high demand, high loadings of lines and transformers and low voltages especially at distribution level are big challenge to safe and secure grid operation. To overcome the commonly encountered challenges during summer months and ensuring smooth grid operation, following are few points which have been discussed on many occasions in previous OCC (recently in 193 OCC) and TCC/ NRPC meetings and are required to be followed by all:

- During summer, in anticipation of increasing demand, adequate reserves shall be maintained.
- All ISGS and state thermal generators need to back down upto 55% of their capacity.
- Apart from portfolio management based on proper forecast, re-starting of units under reserve shutdown at state as well as Inter-state level through appropriate transactions is required.
- Update & sharing coal stock position of thermal plants at least a week in advance as agreed earlier in TCC/NRPC meeting.

- In view of high/increasing demand & transmission constraints (if any) in importing the power or in case of any contingency in the system, states are advised to maximize their internal generation to avoid low frequency/low voltage operation or other related issues
- Extra precautions need to be taken care for important lines which have history of tripping during thunderstorm/ windstorm. ERS availability to be ensured.
- To maintain the voltage profile of Grid within IEGC band during summer, following known actions are suggested:
  - Switching ON Capacitor/Switching OFF reactor as per system requirement
  - Tap Optimization at 400/220kV by NRLDC and 220/132kV by respective state control area based on scatter plots of ICTs, offline studies, NRPC RE account etc.
  - Dynamic reactive support from Generator as per their capability curve.
  - SCADA Displays for better visualization during real-time
- All state control area/Users shall ensure before start of summer that their protection and defense system are in working conditions and settings are as per the recommendations of NRPC
- All are requested to ensure the telemetry of all analog & digital points of all stations at respective control centers.
- All utilities are requested to regularly monitor advance weather information related websites and take necessary actions accordingly. POSOCO-IMD website available @ http://14.139.247.5/power/NRLDC/main/MAIN.html can also be utilised for advance weather information. Live thunderstorm monitoring along with RADAR images are available at website.

All utilities are advised to take actions to ensure above mentioned measures are implemented and share their action plan for demand management during summer 2022.

Members may like to discuss.

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

As discussed in 189th OCC meeting, recently, 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.

UP, Haryana, Rajasthan, Punjab, Uttarakhand and HP are providing reasons whereas some other states such as Delhi, J&K and Chandigarh are not furnishing the reasons for load shedding. In view of the above, it is once again requested to kindly classify the reason of shedding in the detail sheet of hourly load shedding, in the daily power supply report, before uploading it to the web-based reporting software on daily basis.

In 192 OCC meeting, Delhi, J&K and Chandigarh SLDC representative was not available for comments. NRLDC representative expressed concern and stated all SLDCs should immediately take necessary actions as the same is pending since long. As discussed in last OCC meeting, Delhi SLDC should communicate with DISCOMs to timely furnish the data as the same further needs to be shared with MoP. Delhi SLDC was also asked to share their communication to DISCOMs with POSOCO and MoP for taking further actions if DISCOMs are not ready to timely share the details as per the format.

In 193 OCC meeting, Delhi SLDC representative stated they have started sharing the load shedding details are required from 20th March 2022 onwards. However, due to delay in receiving the data from DISCOMs, there might be some delay in reporting the data to NRLDC.

However, it is seen that **some of the states such as Delhi, J&K and Chandigarh are not sharing data. Delhi, J&K and Chandigarh to provide update.**

Members may like to discuss.

16. TTC/ATC of state control areas for summer 2022

From last several OCC meetings, it has been discussed that most of the NR states except J&K, Ladakh and Chandigarh U/Ts are sharing basecase and ATC/TTC assessment with NRLDC. It is observed that some states are still not regularly declaring the TTA/ATC for the import and export of power. OCC has advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement.

SLDCs are requested to go through the tentative ATC/TTC limits for May 2022 (**Annexure-B.II**) and provide comments. If no comments are received, these limits will be assumed confirmed and uploaded on NLDC website. SLDCs are also requested to upload these limits in their respective websites. States are also requested to regularly provide update regarding the upcoming transmission elements which would improve import capability of respective state control area.

Punjab

Punjab was requested to provide update on the following works which are likely to enhance ATC/TTC of Punjab state control area:

- Augmentation of 1 No. 315 MVA ICT with 500 MVA ICT at Ludhiana by shifting of 500 MVA ICT lying spare at Malerkotla to Ludhiana *(to be updated).*
- Commissioning of new 500MVA ICT at Rajpura*(expected by May'2022)*.
- Augmentation of Kartarpur-Jalandhar PGCIL line with HTLS conductor to make 2 No. 315 MVA ICTs N-1 complaint at Nakodar. The loading of these ICTs to be controlled by shifting of Kartarpur load to Jalandhar PGCIL(presently running from Nakodar ICTs) (*expected by Apr'2022*).

In 194 OCC meeting, it was discussed that all these elements are expected before paddy 2022. NRLDC representative stated that the period from June-Sep is associated with very high demand in Punjab state control area and Northern region. The import capability of state is also limited due to major transmission constraints such as 400/220kV ICTs at Rajpura, Nakodar, Ludhiana and several 220kV lines. Punjab SLDC has shared their ATC/TTC assessment with NRLDC on 30.03.2022. NRLDC is reviewing the ATC/TTC limits shared and there have been several discussions between NRLDC and Punjab SLDC on the subject.

UP

SPS for Sohawal and Lucknow to be expedited.

In 191 OCC meeting, UP SLDC representative stated that:

- Exploring possibility of shifting SPS from Bareilly(UP) to Sohawal.
- Constraint at 400/220kV Lucknow(PG) is likely to be relieved with full commissioning of 400/220kV Jehta S/s.

In 192 OCC meeting, UP SLDC informed the following:

- No progress on works for SPS of Sohawal(PG). NRPC and NRLDC expressed concern on the same.
- Mock-testing would be carried out in Anpara-Unnao complex.

In 193 OCC meeting, UP SLDC informed the following:

- No progress on works for SPS of Sohawal(PG). NRPC and NRLDC expressed concern on the same (UP-STU).
- Loading of 400/220kV Sohawal ICTs is expected to be lower this year due to commissioning of nearby substations such as Basti and outage of 220kV lines.

UP SLDC had shared their assessment with NRLDC vide letter dated 31-03-2022.

Intra–State Generation(w/o Solar and Co-Gen)	TTC	RM	ATC
10000	15100	600	14500
11000	14400	600	13800
12000	13800	600	13200
13000	13300	600	12700

As per assessment done by NRLDC, the TTC computation pertaining to UP state control area seems to be okay. However, local load management would be required at Mau, Azamgarh, Nehtaur, Obra, Sarnath, Moradabad & Gorakhpur (UP) to arrive at these figures. Azamgarh ICTs should also be mentioned in the limiting constraints.

Also, the actual load-generation scenario can change the TTC quantum based on the assumed local load distribution.

UP SLDC to share plan for load management at constained ICTs and also update on progress of underlying network at new stations such as 400/220kV Sambhal, Rasra, Sahupuri, Rampur, Jaunpur etc. Status of Harduaganj TPS Unit -2 may also be provided. It was also informed that Sec. 148 S/s has only one supply of DC. Same needs to be attended.

UP SLDC to provide update.

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.

Rajasthan SLDC had shared latest basecase & ATC/TTC assessment with NRLDC on 18.02.2022. Bus split has been done at 220kV Dholpur and Raps-C. NRLDC had shared their observations on 23.02.2022

In 193 OCC meeting, Rajasthan SLDC representative informed there were some changes yet to be incorporated in basecase shared by NRLDC. NRLDC representative stated same may be carried out by Rajasthan before assessment of ATC in basecase shared. It was also informed by Rajasthan that proposal for SPS at constrained locations is under approval and would be brought for discussion in next OCC meeting. ICT Loadings observed above N-1 contingency limits were also discussed in the meeting.

Accordingly, Rajasthan SLDC has proposed SPS at 400/220kV Ajmer, Merta and Chittorgarh **(Annexure-B.III).**

After discussion in OCC, Rajasthan SLDC is requested to expedite implementation of SPS and share revised ATC/TTC assessment of Rajasthan state control area.

Delhi

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

In 190th OCC meeting, Delhi SLDC representative stated that the limits would be reassessed for next summer season shortly with commissioning of 400/220kV Dwarka substation and accordingly revised ATC/TTC limits would be uploaded on website. NRLDC representative suggested that present ATC/TTC limits may be uploaded on SLDC website and with commissioning of 400/220kV Dwarkasubstation, revised ATC/TTC may be uploaded.

Delhi SLDC was asked to implement SPS at Mundka and Bamnoli to save supercritical loads under N-1 contingency of one ICT. Delhi representative stated SPS at Mundka would be implemented before next summer season.

Delhi representative was not present in 192 OCC meeting for comments.

In 193 OCC meeting,Delhi SLDC was asked to implement SPS at Mundka and Bamnoli to save supercritical loads under N-1 contingency of one ICT. Delhi representative stated SPS at Mundkawould be implemented before summer season. However, same is yet to be confirmed by DTL. NRLDC asked DTL and Delhi SLDC to coordinate and expedite shifting of ICT from Bamnauli to Mundka and implementation of SPS at 400/220kV

Mundka. Delhi SLDC was asked to share the revised ATC/TTC limits for summer/monsoon 2022 along with anticipated generation scenario, basecase and reports with NRLDC at the earliest.

Delhi SLDC representative to provide update.

Haryana

Haryana SLDC is once again requested to expedite implementation of SPS and ICT capacity augmentation at 400/220kV Deepalpur and Kurukshetra (PG) to enhance their ATC/TTC limits at the earliest. Haryana SLDC informed SPS would be implemented at Deepalpur by Apr'2022. For Kurukshetra, they will take up the matter with POWERGRID, however loading is expected to be much lower this year.

Haryana SLDC to share the revised ATC/TTC limits for summer/monsoon 2022 along with anticipated generation scenario, basecase and reports with NRLDC at the earliest. Network arrangement for managing loading at Kurukshetra also to be shared. Utilisation of underlying network at Bhiwani to be expedited.

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. One to one meeting was organized on 03.12.2021 between NRLDC and HP SLDC officials to overcome the challenges being faced by SLDC in ATC/TTC assessment and other issues in PSSe.

ATC for summer 2022 may also be shared.

Uttarakhand

Uttarakhand has also shared its ATC assessment with NRLDC for winter 2021-22. ATC for summer 2022 may also be shared.

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. J&K and Ladakh U/Tsare once again requested to advise the concerned officers to evaluate their ATC/TTC limits in coordination with NRLDC and share latest assessment with NRLDC and NRPC after procurement of PSSe software.

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 J&K and Delhi 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

SLDC	Link for ATC on website
Punjab	https://www.punjabsldc.org/downloads/ATC-TTC0321.pdf
Haryana	https://hvpn.org.in/#/atcttc
Delhi	**NA**
Rajasthan	https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
HP	https://hpsldc.com/mrm_category/ttc-atc-report/
Uttarakhand	http://uksldc.in/transfer-capability
J&K and Ladakh U/T	**NA**

Since from April onwards, demand of most of the NR states starts increasing sharply, it is requested that the revised ATC/TTC limits for summer2022 along with anticipated generation scenario may be shared with NRLDC at the earliest***.***

It is again requested that SLDCs may ensure that loading of ICTs and lines are below their N-1 contingency limits. While requisitioning power from various sources, states should take care to limit their scheduled drawl as well as actual drawl in real time within the Available Transfer Capability (ATC) limits assessed by SLDC and NRLDC.

Members may like to discuss.

17. 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. Any update on the status of these elements from last OCC meeting may be shared with the forum (**Annexure-B.IV**).

All utilities are 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.

Members may please discuss.

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

In 176th OCC meeting, it was discussed that first time charging procedure is not being diligently followed by some entities. The documents are being submitted at the last minute and thereafter it is being urged to NRLDC to give the code for charging. In the meeting it was also requested that utilities should inform about elements expected for first time charging in the next one month in advance in OCC meeting. This information would be helpful in carrying out studies, SPS requirement/modification etc in time.

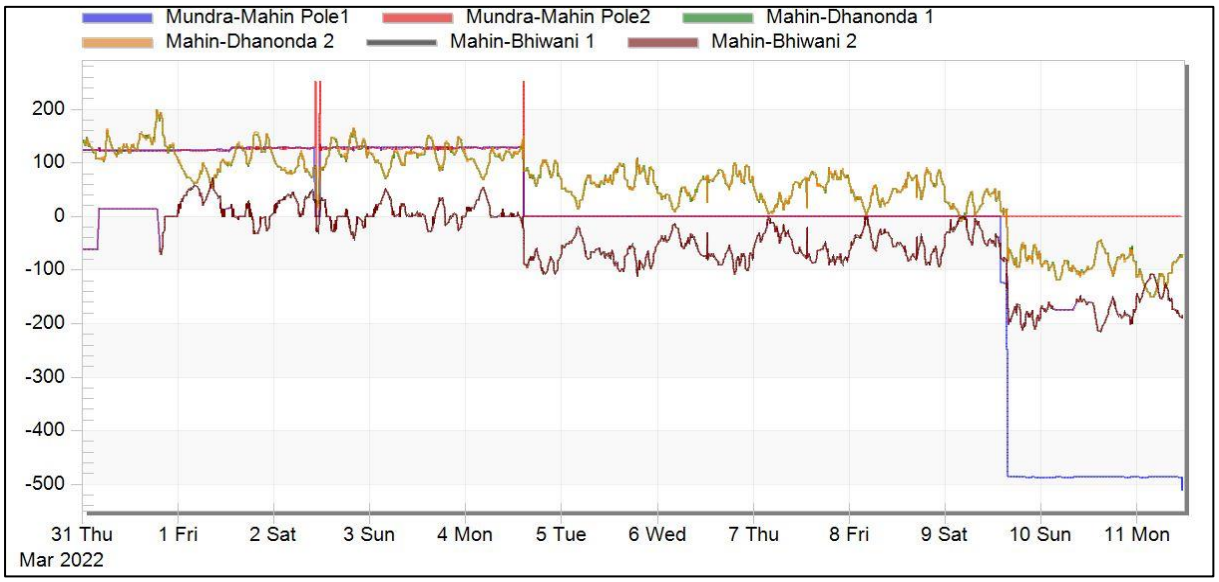
Utilities are also requested to make sure that list of 220kV and underlying intra-state lines and ICTs is readily available with them, so that the same can be shared with NRLDC/NRPC as and when required. This data is to be shared with NRLDC/NRPC for timely updation of Power maps, PSSe basecase, Protection analysis etc.

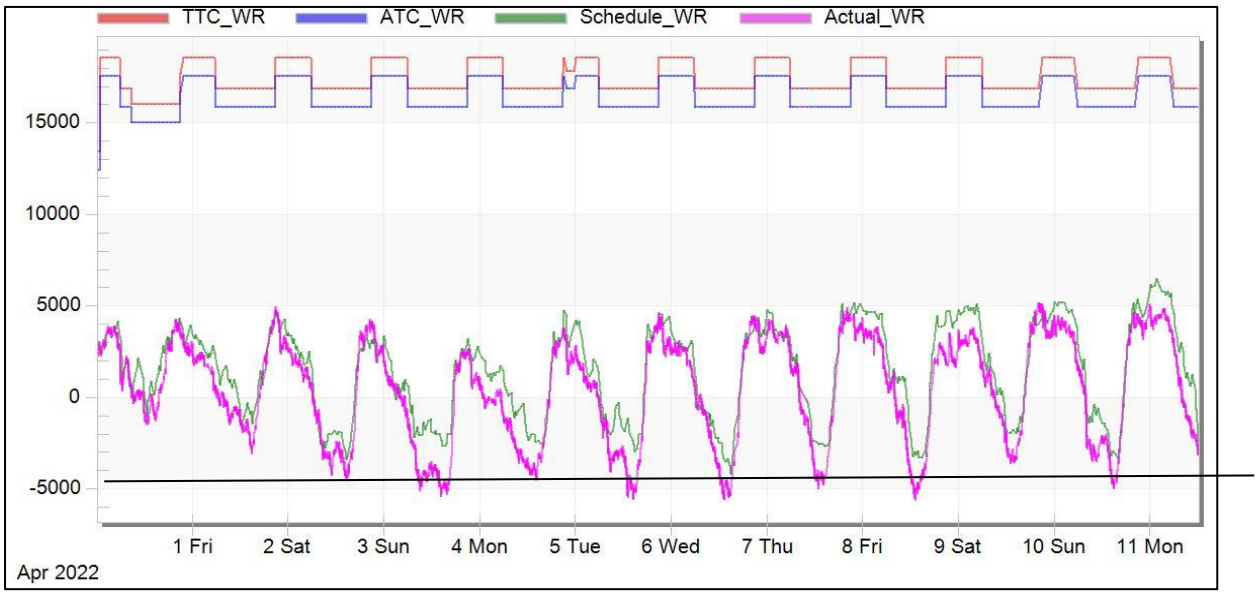
In line with the above decisions, all utilities are requested to share the information about transmission elements/ generating units which are expected to be first time charged in the next 45 days.

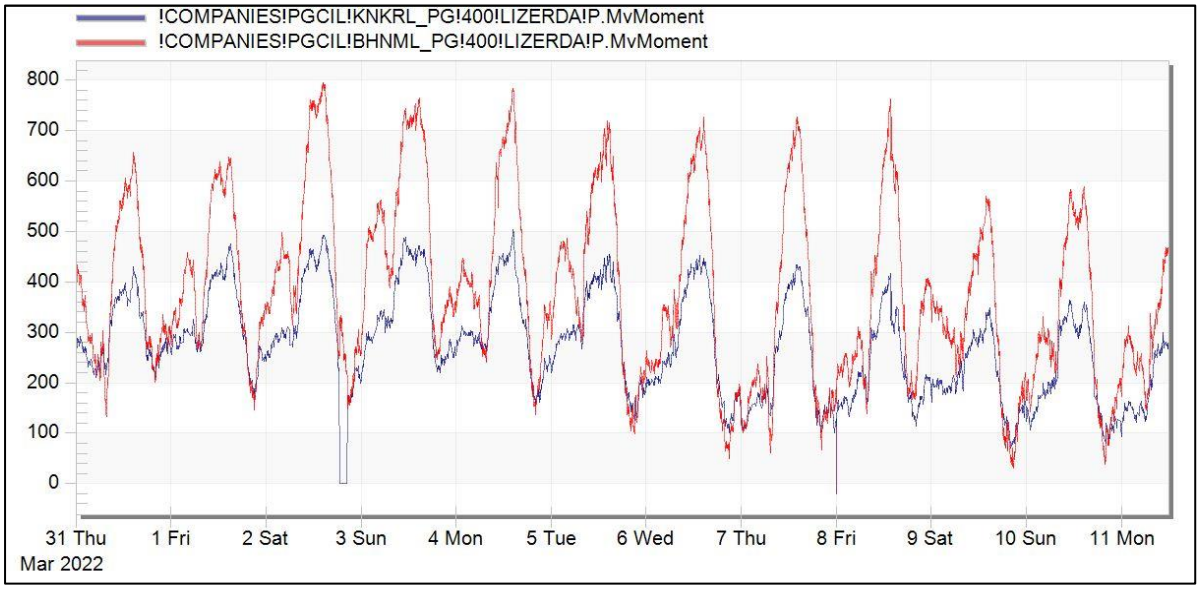
Members may like to discuss.

(ii) NR-WR export violations and operation of HVDC Mundra-Mahendragarh with flow from NR-WR

Reverse operation of HVDC Mundra-Mahendragarh i.e. from NR to WR has started from 9th April 2022 onwards. Presently, the same has been tested for 500MW from NR to WR. As discussed in 51 NRPC meeting, the loading on NR-WR corridor is very high especially during after noon hours even leading to violation of NR-WR ATC on few occasions. However, with reverse operation of HVDC Mundra-Mahendragarh it is expected that more power could be transferred from NR to WR without N-1 compliance of 400kV Bhinmal-Zerda and Kankroli-Zerda. NR-WR ATC has also been increased by 1100MW due to change in LGB and operation of HVDC Mundra - Mahendragarh in NR-WR direction (500 MW). Limiting constraint for NR-WR export is now in Western region i.e. N-1 Contingency of 400 kV Banaskantha - Veloda D/C







Members may like to discuss.

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

As discussed in the 6thTeST 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.

Accordingly, an email was circulated to respective SLDCs on 10.12.2021. However, response from SLDCs is yet to be received.

In 190th OCC meeting, Punjab SLDC representative informed that data calculation from SLDC end data is complete and display for difference between the values from NRLDC end and Punjab SLDC end data is also available at SLDC control room. Punjab SLDC will share screen shot of display available at their control center with NRLDC.

Haryana SLDC representative stated that data from some stations such as 220kV Bawal is not available at SLDC. It was also informed that drawl data is being

monitored from both NRLDC and HVPN end data. Data from 56 points out of 101 points of Haryana end data is telemetered while for remaining data they are using NRLDC end data only due to telemetry issues and other issues such as 220/66kV station being BBMB station, 66kV data is not available.

Uttarakhand SLDC representative stated that at 2-3 stations, RTU is faulty and replacement work is being carried out which would ensure availability of SLDC end data for drawl calculation. Till the replacement work, they are relying on NRLDC end data. NRLDC representative asked Uttarakhand to expedite replacement of faulty RTUs and ensure drawl data availability from SLDC end data also.

CGM(SO) NRLDC had stated that SLDCs should maintain separate lists of points from which both end or single end data is available and regularly monitor all these points. They should also take necessary actions for the points for which telemetry issues are observed.

HP SLDC vide their letter dated 8th March 2022 has intimated that:

- For calculation purpose, interstate drawl points have been mapped in SCADA from both ends keeping in view healthiness of communication media at both ends and other end has been mapped for redundancy, which seems to be more purposeful.
- DISCOMs of HP is in process of installation of new RTUs at 48no.s locations and providing fibre optic communication media on 66kV and above stations. It is anticipated that with these installations, reliability of SCADA data at various drawl points shall be maintained. Till such time the work is completed, it is proposed to utilise the SCADA end data of other end for calculation purpose. The existing work of installation of RTUs and Fibre Optic is likely to be completed within three months as confirmed from HPSEBL.

SLDCs are requested to provide update on the agenda point.

Members may please discuss.

(iv) Update of Important grid element document in line with IEGC:

In line with section 5.2. (c) of IEGC, list of important grid elements in Northern region would be compiled by NRLDC shortly. Such elements shall be opened/closed only on instructions from NRLDC. NRLDC has requested utilities to submit the list of all elements with details charged under their jurisdiction from 1.4.2020 till date including those expected to be commissioned till May 2021 so that the same could be included in the list vide email dated 23rd March 2022.

However, response from most of the utilities is still pending. It is requested to provide details before 30th April 2022. Last updated document is available at following link https://nrldc.in/download/nr-important-grid-elements-may-2021/?wpdmdl=9167. Any other feedback related to inclusion/deletion of elements may also be provided.

Utilities may provide update.

18. Frequent forced outages of transmission elements in the month of Mar'22:

The following transmission elements were frequently under forced outages during the month of **Mar'22**:

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	400 KV Agra-Unnao (UP) Ckt-1	4	UP
2	400 KV Bareilly-Unnao (UP) Ckt-1	4	UP
3	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	4	Rajasthan/NPCIL
4	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2	5	Rajasthan/NPCIL

The complete details are attached at **Annexure-B.V**. It may be noted that frequent outages of 220kv lines connected from RAPS_A (NP) & 220 KV RAPS_B(NP)-occurred due to non-operation of A/R operation. In last 6 months, 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1 tripped around 22 times, 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1 tripped 19 times , 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2 tripped 19 times, 220 KV RAPS_B(NP)-RAPS_A(NP) (RS) Ckt-1 tripped 4 times and 220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1 tripped 8 times. Frequent outages of such elements affect the reliability and security of the grid. Hence, utilities are requested to analyze the root cause of the trippings and share the remedial measures taken/being taken in this respect.

Members may like to discuss.

19. Multiple element tripping events in Northern region in the month of Mar'22:

A total of **15** grid events occurred in the month of Mar'22 of which **11** are of GD-1 category. The preliminary report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.VI.**

Further, despite persistent discussions/follow-up in various OCC/PCC meetings, it is observed that provisions 5.2(r) and 5.9.4(d) of the IEGC, pertaining to reporting of events / tripping to RLDC, is not being complied with by many utilities.

Maximum Fault Duration observed is **1080ms** in the event of multiple element tripping at 220kV Pong (BBMB) on 17-Mar-22 at 08:40hrs.)

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **3** events out of **14** grid events occurred in the month. In 3 number of events, fault signature couldn't be captured from PMU data.

Members may take necessary preventive measures to avoid such grid incidents / disturbances in future and report actions taken by respective utilities in OCC & PSC forum. Moreover, utilities may impress upon all concerned for providing the Preliminary Report, DR/EL & Detailed Report of the events to RLDC in line with the regulations.

Members may like to discuss.

20. Details of tripping of Inter-Regional lines from Northern Region for Mar'22

A total of 2 inter-regional lines tripping occurred in the month of Mar'22. The list is attached at **Annexure-B.VII.** 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 from SLDCs / ISTS licensees / ISGSs is in violation of regulation 5.2(r) of IEGC and regulation 15(3) of CEA Grid Standards. 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 that mandated by CEA (Grid Standard) Regulations.

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

21. Status of submission of DR/EL and tripping report of utilities for the month of Mar'22

The status of receipt of DR/EL and tripping report of utilities for the month of Mar 2022 is attached at **Annexure-B.VIII**. 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 CPCC3, Haryana, Rajasthan and Himachal Pradesh in Mar, 2022 compared to the previous month.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the trippings shall 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. Apart from prints of DR outputs, the corresponding COMTRADE files may please also be submitted in tripping portal / through email.

22. Frequency response characteristic

Two FRC based event occurred in the month of **Mar-2022**. Description of the event is as given below:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	End Frequency (in Hz)	*Δf*
1	15-Mar-22	15:30hrs	At 15:30 Hrs Dated 15th-March-2022,As reported bus bar protection operated at 220 KV Raigarh CG S/S of Western Region and resulted in tripping of all elements at 220 KV	49.94	50.00	0.06

			Raigarh CG S/S.Load loss of around 936 MW reported in the event.			
2	27-Mar-22	12:47hrs	At 12:47 Hrs Dated 27th-March-2022, As reported due to multiple element tripping at 400kV Lapanga station 562 MW(Unit-3) Generation loss at OPGC and 1900 MW load loss at 400kV Sterlite (Vedanta) occurred. Effective Load loss of around 1338 MW has been considered in the event for FRC Calculation.	49.99	50.02	0.03

Status of Data received till date:

Status of Field Data received of FRC of Grid event occurred at Raipur (Chhattisgarh) at 15:30 Hrs on 15.03.2022			
Data Received from		**Data Not Received from**	
Singrauli NTPC	Tehri HEP	HP	Rihand NTPC
Kawai (Adani)	Nathpa Jhakri	UK	APCPL Jhajjar
		Punjab	Unchahar TPS
		BBMB	Koteshwar
		Rajasthan	Others
		Delhi	
		Haryana	
		UP	

Status of Field Data received of FRC of Grid event occurred at Sterlite(Vedanta, Odisha) at 12:47 Hrs on 27.03.2022			
Data Received from		Data Not Received from	
Singrauli NTPC	NHPC	HP	Rihand NTPC
Kawai (Adani)		UK	APCPL Jhajjar
		Punjab	Unchahar TPS
		BBMB	Others
		Rajasthan	
		Delhi	
		Haryana	
		UP	

PFR as per generators field data:

Primary Frequency Response by Generators during Grid Event at Raipur (Chhattisgarh) at 15:30 Hrs on 15.03.2022

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
1	**N. Jhakri Unit-6**	65.1%	Unsatisfactory PFR Response
2	**Kawai (Adani) Unit-1**	97.2%	Satisfactory Response
3	**Kawai (Adani) Unit-2**	0.8%	Poor PFR Response
4	**Singrauli Unit-6**	8%	Unsatisfactory/Poor PFR Response
5	**Singrauli Unit-7**	0%	Poor PFR Response
6	**Tehri HEP Unit-1**	81.3%	Satisfactory Response

Primary Frequency Response by Generators during Grid Event at Sterlite(Vedanta, Odisha) at 12:47 Hrs on 27.03.2022

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
1	**Kawai (Adani) Unit-1**	362%	Satisfactory Response
2	**Kawai (Adani) Unit-2**	3.2%	Poor PFR Response
3	**Singrauli Unit-6**	35%	Unsatisfactory PFR Response
4	**Singrauli Unit-7**	8%	Poor PFR Response
5	**Chamera III**	13%	Unsatisfactory/Poor PFR Response

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.***

Other utilities are also requested to kindly share the FRC calculations and further action taken at their end.

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

In last 13 OCC meetings, 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)

The status of test performed till date is attached at **Annexure-B.IX.**

It may be noted that Tehri HEP conducted PSS tuning/ Step response test of their units and submitted report. In UP Control area, Step response test of Rosa Unit#1 & Unit#4 done on 5th Oct, 2021, test of Lalitpur Unit#2 on 30th March 2021, unit#1 on 23rd February, 2022 & Unit#3 on 15th January 2022. Step response test of Bara Unit#2 done on 1st February, 2022, Anpara A unit#1 & Unit#2 done on 27th September, 2021, Harduaganj Unit#7 & Unit#9 done on 16th July, 2021.

In Rajasthan control area, Step response test of Unit#1, 3, 4, 5&6 of STPS, Suratgarh carried out on 05.02.22, 06.02.22 & 14.03.22 and step response test of Generators of Unit #1, 2,3,4,6 & 7 of KTPS, Kota carried out during the period 02.03.22 to 04.03.22.

Schedule has been received from Rajasthan and UP Control area. However, no further updates have been received from other utilities till date.

It is to be noted that as per regulation 5.2(k) of IEGC, Power System Stabilizers (PSS) in AVRs of generating units (wherever provided), shall be got properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the CTU/RPC from time to time.

In 193rd OCC meeting, Members were requested to update about their future plan for PSS tuning as there is no significant progress despite including this agenda in every OCC meeting and a separate meeting may be call for detail discussion on this matter.

Members may please discuss.

Follow up issues from previous OCC meetings Annexure-A.I

1	Down Stream network by State utilities from ISTS Station	Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.	List of downstream networks is enclosed 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 Dec-2021 ◎ HARYANA Aug-2021 ◎ HP Jan-2022 ◎ J&K and LADAKH Not Available ◎ PUNJAB Aug-2021 ◎ RAJASTHAN Feb-2022 ◎ UP Nov-2021 ◎ UTTARAKHAND Mar-2022 All States/UTs are requested to update 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 Dec-2021 ◎ HARYANA Dec-2021 ◎ HP Jan-2022 ◎ J&K and LADAKH Not Available ◎ PUNJAB Mar-2021 ◎ RAJASTHAN Dec-2021 ◎ UP Dec-2021 ◎ UTTARAKHAND Mar-2022 ◎ BBMB Dec-2021 All States/UTs are requested to update 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	Status of the information submission (month) from states / utilities is as under: ◎ HARYANA Feb-2021 ◎ PUNJAB Nov-2021 ◎ RAJASTHAN Dec-2021 ◎ UP Nov-2021

		where FGD was required to be installed. Further, progress of FGD installation work on monthly basis is monitored in OCC meetings.	◎	NTPC	Sep-2021 FGD status details are enclosed as **Annexure-A.I.II**. All States/utilities are requested to update 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: July 2022 (90% supplies received from GE and rest is expected by Feb'22)
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection (delay due to pending supply of reactor bushings). GIS Bay is already available.
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection (delay due to pending supply of rector bushings). GIS Bay is already available.
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	Tender has been invited in first week of Jan'22.

xi	RAJASTHAN	Akal	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment forwarded to NLDC, POSOCO on dt. 29.04.2021. Targeted to be completed by March 2022.
xii	RAJASTHAN	Bikaner	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment forwarded to NLDC, POSOCO on dt. 29.04.2021. Targeted to be completed by March'2022.
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment forwarded to NLDC, POSOCO on dt. 29.04.2021. Targeted to be completed by March 2022.
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 dt.22.10.2021 & Price bid opened on 10.01.22. Order likely to be placed in Feb' 2022.
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 dt.22.10.2021 & Price bid opened on 10.01.22. Order likely to be placed in Feb' 2022.

Annexure-A-I.I

1. Down Stream network by State utilities from ISTS Station:

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	-	PDD, J&K to update the status.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	-	PDD, J&K to update the status.
				• 220 kV New Wanpoh - Mattan D/c Line	-	PDD, J&K to update the status.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 6 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	-	PDD, J&K to update the status.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	-	HVPNL to update the status.
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1 Total: 7	Utilized: 3 Unutilized: 3 (2 bays to be utilized shortly) Approved/Under Implementation:1	• 220 kV D/C Shahajahanpur (PG) - Gola line	-	UPPTCL to update the status.
				• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG) – under commissioning	21.02.2022	Updated in 192nd OCC by UPPTCL
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4 (2 bays to be utilized shortly)	• 220 kV Hamirpur-Dehan D/c line	Mar'22	Updated in 192nd OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Mar'22	Forest Cleareance issue has been resolved as Updated in 192nd OCC by RRVPNL
				• Network to be planned for 2 bays.	-	RRVPNL to update the status.
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	-	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	-	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	-	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0 Approved:4	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	-	HVPNL to update the status.
11	400/220kV Tughlakabad GIS	Commissioned: 6 Under Implementation: 4 Total: 10	Utilized: 6 Unutilized: 0 Under Implementation:4	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	-	DTL to update the status.
				• Masjid Mor – Tughlakabad 220kV D/c line.	-	DTL to update the status.
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Jan'23	Updated in 192nd OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both circuits of 220 KV Pali - Sector 56 D/C line at Kadarpur along with augmentation of existing conductor from 220 KV Sector-56 to LILO point with 0.4 sq inch AL-59 conductor.	-	HVPNL to update the status.
				• LILO of both circuits of 220KV Sector 65 - Pali D/C line at Kadarpur along with augmentation of balance 0.4 sq. inch ACSR conductor of 220 kV Kadarpur - Sector 65 D/C line with 0.4sq inch AL-59 conductor	-	HVPNL to update the status.
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both circuits of 220kV D/c Sector-69 - Roj Ka Meo line at 400kV Sohna Road	-	HVPNL to update the status.
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	HVPNL to update the status.
15	400/220kV Prithla Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	-	HVPNL to update the status.
				• 220kV D/C for Sector78, Faridabad	-	HVPNL to update the status.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 2 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat		HVPNL to update the status.
				• Sonepat - HSIISC Rai 220kV D/c line	Jul'22	Updated in 192nd OCC
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG)	Oct'22	In Tendering stage as updated in 192nd OCC by RVPNL.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	RVPNL to update the status.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	-	PSTCL to update the status.
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	-	PTCUL to update the status.
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	UPPTCL to update the status.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	-	UPPTCL to update the status.
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 4 bays	-	UPPTCL to update the status.
24	400/220kV Abdullapur Sub-station	Commissioned: 10 Under Implementation:2 Total: 12	Utilized: 10 Unutilized: 0 Under Implementation:2	• Abdullapur – Rajokheri 220kV D/c line	Mar'22	Updated in 192nd OCC by HVPNL
25	400/220kV Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 Out of these 10 nos. 220kV Line Bays, 2 bays would be used by the lines being constructed by POWERGRID (Chandigarh-2) and balance 8 nos. bays would be used by HVPNL	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Pinjore 220kV D/c line	-	HVPNL to update the status.
				• Panchkula – Sector-32 220kV D/c line	-	HVPNL to update the status.
				• Panchkula – Raiwali 220kV D/c line	-	HVPNL to update the status.
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	-	HVPNL to update the status.
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Unutilized: 1 Approved in 50th NRPC- 1 no.	• Amritsar – Patti 220kV S/c line	-	PSTCL to update the status.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	-	PSTCL to update the status.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	·• Bagpat - Modipuram 220kV D/c line	-	UPPTCL to update the status.
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• Network to be planned for 2 bays.		HVPNL to update the status.
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:6 Unutilized: 2	• Network to be planned for 2 bays.	-	RVPNL to update the status.
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 2 Unutilized: 6	• Sohawal - Barabanki 220kV D/c line	-	UPPTCL to update the status.
				• Sohawal - New Tanda 220kV D/c line	-	UPPTCL to update the status.
				• Network to be planned for 2 bays	-	UPPTCL to update the status.
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	-	RVPNL to update the status
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	HVPNL to update the status
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	UPPTCL to update the status

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	-	PSTCL to update the status
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	-	HPPTCL to update the status
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	UPPTCL to update the status
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	-	PSTCL to update the status

2. Establishment of new 400/220kV substations in Northern Region:

Sl. No.	Name of Substation	MVA Capacity	Expected Schedule		Downstream connectivity by States
1	400/220kV Dwarka-I GIS (8 nos. of 220kV bays)	4x 500	Mar'22		DTL to update the status.
2	220/66kV Chandigarh GIS (8 nos. of 66kV bays)	2x 160	Apr'22		Chandigarh to update the status.
3	400/220kV Jauljivi GIS Out of these 8 nos. 220kV Line Bays, 4 nos. (Pithoragath-2, & Dhauliganga-2) would be used by the lines being constructed by POWERGRID and balance 4 nos. bays would be used by the lines being constructed by PTCUL.	2x315	Feb'22		〈 220kV Almora-Jauljibi line 〈 220kV Brammah-Jauljibi line PTCUL to update the status of lines.

Annexure-A.I.II

FGD Status

Updated status of FGD related data submission

NTPC (25.02.2022)
MEJA Stage-I
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (21.03.2022)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (21.03.2022)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (07.04.2022)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Lalitpur Power Gen. Co. Ltd. (15.02.2022)
Lalitpur TPS
Lanco Anpara Power Ltd. (15.02.2022)
ANPARA-C TPS

HGPCL (21.03.2022)
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS

Adani Power Ltd. (18.02.2022)
KAWAI TPS

Rosa Power Supply Company (15.02.2022)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (15.02.2022)
Prayagraj TPP
APCPL (25.02.2022)
INDIRA GANDHI STPP

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB

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: 30-09-2022), INDIRA GANDHI STPP U#2 (Target: 30-09-2022), INDIRA GANDHI STPP U#3 (Target: 30-09-2022)
GVK Power Ltd.	GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020)
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)

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: 30-06-2022), DADRI (NCTPP) U#6 (Target: 30-06-2022), RIHAND STPS U#1 (Target: 30-06-2024), RIHAND STPS U#2 (Target: 30-06-2024), 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: 30-06-2024), SINGRAULI STPS U#2 (Target: 30-06-2024), SINGRAULI STPS U#3 (Target: 30-06-2024), SINGRAULI STPS U#4 (Target: 30-06-2024), SINGRAULI STPS U#5 (Target: 30-06-2024), SINGRAULI STPS U#6 (Target: 31-03-2023), SINGRAULI STPS U#7 (Target: 31-03-2023), UNCHAHAR TPS U#1 (Target: 31-12-2023), UNCHAHAR TPS U#2 (Target: 31-12-2023), UNCHAHAR TPS U#3 (Target: 30-06-2024), UNCHAHAR TPS U#4 (Target: 30-06-2024), UNCHAHAR TPS U#5 (Target: 30-06-2024), UNCHAHAR TPS U#6 (Target: 30-06-2022), MEJA Stage-I U#1 (Target: 31-12-2022), MEJA Stage-I U#2 (Target: 31-12-2022), TANDA Stage-I U#3 (Target:), TANDA Stage-I U#4 (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)
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: 31-10-2024), PRAYAGRAJ TPP U#2 (Target: 31-10-2024), 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)
UPRVUNL	ANPARA TPS U#1 (Target: 31-12-2023), ANPARA TPS U#2 (Target: 31-12-2023), ANPARA TPS U#3 (Target: 31-12-2023), ANPARA TPS U#4 (Target: 31-12-2023), ANPARA TPS U#5 (Target: 31-12-2023), ANPARA TPS U#6 (Target: 31-12-2023), ANPARA TPS U#7 (Target: 31-12-2023), HARDUAGANJ TPS U#8 (Target: 31-12-2024), HARDUAGANJ TPS U#9 (Target: 31-12-2024), OBRA TPS U#9 (Target: 31-12-2024), OBRA TPS U#10 (Target: 31-12-2024), OBRA TPS U#11 (Target: 31-12-2024), OBRA TPS U#12 (Target: 31-12-2024), OBRA TPS U#13 (Target: 31-12-2024), PARICHHA TPS U#3 (Target: 30-04-2022), PARICHHA TPS U#4 (Target: 31-12-2024), PARICHHA TPS U#5 (Target: 31-12-2024), PARICHHA TPS U#6 (Target: 31-12-2024)

MIS Report for Status of Islanding Schemes

Implemented Schemes

Sl. No.	Islanding Scheme	SLDC	Status	Submission of Self Certification of Healitheness	SOP	SCADA Display Page	Remarks
1	Delhi IS	Delhi	Implemented	Yes (Sept - 2021)	No	Yes	List of officials in-charge and relays in Delhi IS submitted by DTL on 16.08.2021.
2	NAPS IS	UP	Implemented	Yes (08-10-2021)	Yes	Yes	-
3	RAPS IS	Rajasthan	Implemented	16-Aug-21	Yes	Yes	List of officials in-charge, format for generation, islanding scheme sld and relays in RAPP IS submitted by RVPN on 04.12.2021.

Under Implementation/ Newly Proposed/Under Discussion

Sl. No.	Islanding Scheme	SLDC	Status	Details of progress	DPR for PSDF funding (Required / Not Required)	Timelines Status - Proposed/Actual									
						Study		Design		Approval		Procurement		Commissioning	
						Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual
1	Lucknow-Unchahar IS	UP	Under Implementation	UP has got offer from CPRI for study. The estimated time of study is 5 months from date of acceptance.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Newly Proposed	UP has got offer from CPRI for study. The estimated time of study is 5 months from date of acceptance.		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Newly Proposed	Visit of Rajasthan officials at NRLDC is awaited for finalization of feasibility study.	RVPN will propose to avail PSDF funding	-		-	-	-	-	-	-	-	-
4	Patiala-Nabha Power Rajpura IS	Punjab	Newly Proposed	Punjab has sent the offer to CPRI for study of Islanding Schemes.		-		-	-	-	-	-	-	-	-
5	Pathankot-RSD IS	Punjab	Newly Proposed	Punjab has sent the offer to CPRI for study of Islanding Schemes.		-		-	-	-	-	-	-	-	-
6	Talwandi Sabo IS	Punjab	Newly Proposed	Punjab has sent the offer to CPRI for study of Islanding Schemes.		-		-	-	-	-	-	-	-	-
7	Dehradun IS	Uttarakhand	Newly Proposed	Matter is pending at Uttarakhand SLDC for finalization/rejection of scheme.		-	-	-	-	-	-	-	-	-	-
8	Jammu-Salal IS	J &K	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
9	Suratgarh IS	Rajasthan	Under Discussion	Visit of Rajasthan officials at NRLDC is awaited for finalization of feasibility study.	RVPN will propose to avail PSDF funding	-		-	-	-	-	-	-	-	-
10	Chamba-Chamera IS	HP	Under Discussion	Transient study is being done at HP end.		-	-	-	-	-	-	-	-	-	-
11	Kangra-Chamba-Bairasuil IS	HP	Under Discussion	Transient study is being done at HP end.		-	-	-	-	-	-	-	-	-	-
12	Kullu-Dehar IS	HP	Under Discussion	HP has proposed Kullu-Manali-Mandi islanding scheme with Larji and Malana HEP and Shimla-Solan Islanding with Bhabha and other IPPs at Kotla. Fresh transient study with dynamic data is pending at HP end.		-	-	-	-	-	-	-	-	-	-
13	Butari-Jamsher-Verpal IS	Punjab	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
14	Kargil-Ladakh IS	Ladakh	Under Discussion	-		-	-	-	-	-	-	-	-	-	-

Annexure-A.III

RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED.
[Corporate Identity Number (CIN):U40109RJ2000SGC016485]
(Regd. Office: Vidyut Bhawan, Jan Path, Jyoti Nagar, Jaipur - 302 005)
OFFICE OF THE SUPERINTENDING ENGINEER (PROJECT & PLANNING)
✆ +91-141-2740623,Fax:+91-141-2740794;
e-mail: se.pp@rvpn.co.in; website:www.rvpn.co.in

RVPN
An ISO 9001:2015 Certified Company

15 YEARS OF CELEBRATING THE MAHATMA

No. RVPN/SE(P&P)/XEN -2/AE-III/ F. /D 2524 Jaipur, Dt. 30/3/2022

Member Secretary
Northern Regional Power Committee,
18-A, Shaheed Jeet Singh Marg, Katwaria Sarai,
New Delhi-110016

Sub: Appraisal report of NRPC regarding Installation/ Re-shuffling Programme of 33 kV Shunt Capacitor Banks at various GSS of RVPN.

Dear Sir,

On the above captioned subject, kindly find enclosed herewith the installation and diversion programme of 33 kV Shunt Capacitor Banks of Jaipur/ Ajmer/ Jodhpur Zone for FY 2021-22.

The above requirement had been assessed due to load growth in the Rajasthan (6.54% annual growth rate) and agriculture load also increase through two block supply arrangement (as per announcement of the Government of Rajasthan). This resulted in low voltage issues and low power factor at many locations. Therefore, in order to avoid this situation the installation of additional capacitor and re-shuffling of capacitor banks to those GSS where the requirement exists have been planned. Installation of additional capacitor banks/reshuffling of capacitors will not only improve the voltage profile and power factor but will reduce the transmission and distribution losses in the state.

The Whole Time Director (WTDs) of RVPN have considered the proposal in July'2022 and accorded its administrative & financial sanction of said scheme subjected to the approval of funding of the scheme from the Power System Development Fund (PSDF) through NLDC, POSOCO.

The complete case had been sent to NLDC, POSOCO in Dec'2021, but the observation has been raised by CEA(NPC) to provide Appraisal report of NRPC. Therefore, it is requested to kindly arrange to provide Appraisal report, so the same may be provided to NLDC, POSOCO for funding of the scheme from PSDF.

Encl: As above.

Yours sincerely,

(K.K.Meena)
Addl. Chief Engineer (PP&D)

SE(O)
Pls take up in next OCC.

Sh. Pradeep EE(O) 08/04.
Sh. Vipul, AEE(O): 07.04.2022

730

RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED.

[Corporate Identity Number (CIN):U40109RJ2000SGC016485]
(Regd. Office: Vidyut Bhawan, Jan Path, Jyoti Nagar, Jaipur - 302 005)

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OFFICE OF THE SUPERINTENDING ENGINEER (P&P)

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e-mail:se.pp @rvpn.co.in WEBSITE :www.rvpn.co.in

No. RVPN/CE (PP&D)/SE (P&P)/ XEN-I AE-I/ F. D 611 Jaipur. Dt 12/7/21

The Chief Engineer (T&C),
Rajasthan Rajya Vidyut Prasaran Nigam Ltd.,
Jaipur/ Ajmer/ Jodhpur.

Sub:- Administrative & financial sanction for capacitor Bank installation/ re-shuffling program for year 2021-22.

The administrative & financial sanction of the Whole Time Directors of RVPN has hereby conveyed for capacitor Bank installation/ re-shuffling program for year 2021-22; having total estimated cost of Rs. 3887.37 lacs as per the abstract of cost placed at Annex-I. Details of substations on which the capacitor bank installation/ re-shuffling has been proposed has been placed at Annex-II, III, IV & V.

The expenditure of this scheme shall be made from provision made under the head "Capacitor Bank Installation" in Annual Plan. Additional funds required (if any) under this head would be provided in revised budget estimates (RBE) in Annual Plan at the time of revision of the same.

Encl: As above

(Sudhir Jain)
Superintending Engineer (P&P)

Copy to the following for information & necessary action:-

1. The Chief Controller of Accounts, RVPN, Jaipur.
2. The Chief Engineer (Procurement/ Civil), RVPN, Jaipur.
3. The Superintending Engineer (Procurement-I/ II), RVPN, Jaipur.
4. The Superintending Engineer (QC., Insp. & Montg./ MIS/ Design/ NPP&R), RVPN, Jaipur.
5. The Executive Engineer-1 & 2 (P&P), RVPN, Jaipur.

Encl: As above

Superintending Engineer (P&P)

D/AE-I/BoD Approvals

ABSTRACT COST OF CAPACITOR BANK INSTALLATION/ RESHUFFLING PLAN 2021-22

S.NO.	ZONE	COST OF NEW BANK INSTALLTION	COST OF DIVERTED CAPACITOR BANKS	TOTAL (RS. LACS)
1	JAIPUR	1053.86	-	1053.86
2	AJMER	799.48	157.84	957.32
3	JODHPUR	1817.00	59.19	1876.19
	TOTAL	**3670.34**	**217.03**	**3887.37**

REQUIREMENT OF 33 KV NEW 5.43 MVAR SHUNT CAPACITOR BANKS FOR THE FY 2021-22

Name of Zone : 1. Jaipur Zone

S.No.	Name of Circle	Name of GSS	Transformer Capacity (MVA)	Installed Shunt Capacitor Capacity (MVAR)	New Capacitor Banks Proposed	Cost/ Bank	Amount (Rs. Lacs)
1	SE (T&C) KOTA	220 KV GSS BHAWANIMANDI	25	0	1	36.34	36.34
2		220 KV GSS Baran	25	0	1	36.34	36.34
3		132 KV GSS Kishanganj	50	5.43	1	36.34	36.34
4		132 kV GSS RVPN, Mangrol	25	0	1	36.34	36.34
5		132 KV GSS BAPAWAR	37.5	5.43	1	36.34	36.34
6		132KV GSS RVPN Mamoni (Baran)	50	5.43	1	36.34	36.34
7	SE (T&C) ALWAR	132 KV GSS,GOVINDGARH(ALWAR)	50	5.43	1	36.34	36.34
8		132 KV GSS, RVPN, Kherli (Alwar)	75	10.86	1	36.34	36.34
9		132 KV GSS, Laxmangarh	100	16.29	1	36.34	36.34
10		132 KV GSS Ramgarh	75	16.29	1	36.34	36.34
11		132 KV GSS,Pinan	50	5.43	1	36.34	36.34
12		132 KV GSS Thanagazi	62.5	10.86	1	36.34	36.34
13		132 KV TELCO CIRCLE ALWAR	25	0	1	36.34	36.34
14		220 KV GSS, RVPN, Bansur (Alwar)	50	5.43	1	36.34	36.34
15	SE (T&C) Hindaun	132 KV GSS Nangal Sherpur	50	5.43	1	36.34	36.34
16		132 KV GSS RIICO DHOLPUR	25	0	1	36.34	36.34
17		132 KV GSS BARI	25	0	2	36.34	72.68
18		132 KV GSS, Marena	25	5.43	1	36.34	36.34
19	SE (T&C) Sawai Madhopur	220 KV GSS Gangapur City	25	0	1	36.34	36.34
20		132 KV GSS Bamanwas	25	0	1	36.34	36.34
21		132 KV GSS , Keshoraipatan	25	0	2	36.34	72.68
22		132 KV GSS , Bundi	95	14.4	1	36.34	36.34
23		132 KV GSS DABI	25	0	1	36.34	36.34
24		132 KV GSS Baler	25	0	1	36.34	36.34
25		132 KV GSS DABLANA	25	0	1	36.34	36.34
26	SE (T&C) Jaipur Rural	220 KV GSS, RVPN, Manoharpur	100	10.86	1	36.34	36.34
27		220 KV GSS NIWANA	25	0	1	36.34	36.34
TOTAL					29		1053.86

REQUIREMENT OF 33 KV NEW 5.43 MVAR SHUNT CAPACITOR BANKS FOR THE FY 2021-22

Name of Zone : 2. Ajmer Zone

S.No.	Name of Circle	Name of GSS	Transformer Capacity (MVA)	Installed Shunt Capacitor Capacity (MVAR)	New Capacitor Banks Proposed	Cost/ Bank	Amount (Rs. Lacs)
1	SE (T&C) AJMER	132KV GSS, SAWAR	25	0	1	36.34	36.34
2		220 KV GSS Jethana	160	0	1	36.34	36.34
3		132KV GSS Roopangarh	75	10.86	1	36.34	36.34
4	SE (T&C) BABAI	132KV GSS Nangali	50	10.86	1	36.34	36.34
5	SE(T&C) MERTA	220 KV GSS Khinvsar	100	16.29	1	36.34	36.34
6		132 KV GSS HEESABA	100	10.86	1	36.34	36.34
7		132KV GSS GOGELAW	25	0	1	36.34	36.34
8		132 KV GSS Narwa	50	10.86	1	36.34	36.34
9	SE(T&C) SIKAR	220KV GSS DANTARAMGARH	75	10.00	1	36.34	36.34
10		220KV GSS Dhod	100	16.29	1	36.34	36.34
11		132 KV GSS RVPN KUDAN	50	10.86	1	36.34	36.34
12		132 KV GSS, Ranoli	50	10.86	1	36.34	36.34
13		132 KV GSS, Water Works, Sikar	75	0	1	36.34	36.34
14		132KV GSS Piprali	75	10.86	1	36.34	36.34
15	SE (T&C) BHILWARA	132 KV GSS KOTRI	25	0	1	36.34	36.34
16		132 KV GSS Beegod	50	5.43	1	36.34	36.34
17	SE (T&C) CHITTORGARH	132 KV GSS BEGUN	75	10.86	1	36.34	36.34
18		132 KV GSS BAROLI	37.5	5.43	1	36.34	36.34
19		132 KV GSS Dhoriya choraha	25	0	1	36.34	36.34
20		132 KV GSS KANERA	25	0	1	36.34	36.34
21		132 KV GSS Mokhampura	37.5	0	1	36.34	36.34
22		132 KV GSS Chhoti Sadri	50	12.63	1	36.34	36.34
	TOTAL				22		799.48

REQUIREMENT OF 33 KV NEW 5.43MVAR SHUNT CAPACITOR BANKS FOR THE FY 2021-22

Name of Zone : 3. Jodhpur Zone

S.No.	Name of Circle	Name of GSS	Transformer Capacity (MVA)	Installed Shunt Capacitor Capacity (MVAR)	New Capacitor Banks Proposed	Cost/ Bank	Amount (Rs. Lacs)
1	SE (T&C) JODHPUR	132 KV GSS S S NAGAR	50	0	1	36.34	36.34
2		132 KV GSS BAPINI	50	5.43	1	36.34	36.34
3		132 KV GSS DECHU	75	16.29	1	36.34	36.34
4		132 KV GSS CHAMU	100	10.86	2	36.34	72.68
5		132 KV GSS Setrawa	50	5.43	1	36.34	36.34
6		132 KV GSS KALAU	75	10.86	1	36.34	36.34
7		132 KV GSS LOHAWAT	100	16.29	1	36.34	36.34
8	SE (T&C) KANKANI	132 KV GSS NATHRAU	25	5.43	1	36.34	36.34
9		132KV GSS Bana ka Bas	25	0	1	36.34	36.34
10		132KV GSS Bera	25	0	1	36.34	36.34
11		132KV GSS HATUNDI	50	10.86	1	36.34	36.34
12	SE (T&C) SIROHI	132 KV GSS REODAR	75	16.29	1	36.34	36.34
13		132 KV GSS PALADAR	25	5.43	1	36.34	36.34
14		132 KV GSS BHADROONA	62.5	10.86	1	36.34	36.34
15		132 KV GSS BAGORA	75	16.29	1	36.34	36.34
16		132KV GSS POONASA	75	10.86	1	36.34	36.34
17		132 KV GSS Daspan	50	10.86	1	36.34	36.34
18		132 KV GSS POSALIYA	25	5.43	1	36.34	36.34
19		220 KV GSS SAYALA	50	5.43	1	36.34	36.34
20		132 KV GSS SWAROOPGAN	25		1	36.34	36.34
21	SE (T&C) BARMER	220 KV GSS DHORIMANNA	75	10.86	1	36.34	36.34
22		132 KV GSS SEDWA	50	5.43	1	36.34	36.34
23		132 KV GSS SATA	37.5	5.43	1	36.34	36.34
24		132 KV GSS RANASAR	37.5	5.43	1	36.34	36.34
25		132 KV GSS SAWA	50	10.86	1	36.34	36.34
26		132 KV GSS MEHLOO	37.5	5.43	1	36.34	36.34
27		132 KV GSS CHOUHTAN	25	0	1	36.34	36.34
28		132 KV GSS Gadra road	50	5.43	1	36.34	36.34
29	SE (T&C) BIKANER	132 KV GSS BAJJU	50	0	1	36.34	36.34
30		132 KV GSS Bhhamattsar	25	0	1	36.34	36.34
31		220 KV GSS Chhattargarh	50	0	2	36.34	72.68
32		132 KV GSS DULCHASAR	75	10.86	1	36.34	36.34
33		132 KV GSS DESHNOK	75	10.86	1	36.34	36.34
34		132KV GSS KITASAR	50	5.43	1	36.34	36.34
35		132 KV GSS LALAMDESAR	50	10.86	1	36.34	36.34
36		132 KV GSS MUNDSAR	25	5.43	1	36.34	36.34
37		132KV GSS SHERERA	50	5.43	1	36.34	36.34
38	SE (T&C) JAISALMER	132 KV GSS CHANDAN	100	10.86	2	36.34	72.68
39		132 KV GSS SANGARH	50	0	2	36.34	72.68
40		132 KV GSS JHINJHINYALI	25	0	1	36.34	36.34
41		132 KV GSS Ajasar	25	0	1	36.34	36.34
42	SE(T&C), Hanumanarh	132 KV GSS Fatehgarh	25	0	1	36.34	36.34
43		132 KV GSS TIBBI	25	0	1	36.34	36.34
44		132 KV GSS Pallu	25	0	1	36.34	36.34
45		220 KV GSS Bhadra	225	0	1	36.34	36.34
46	SE (T&C) Ratangarh	220 KV GSS HALASAR	25	0	1	36.34	36.34
TOTAL					50		1817.00

Abstract for Diversion/Shifting of Capacitor Banks under Ajmer Zone

S.No	Diverted from		Diverted to			
	Name of GSS	Present Existing Shunt Capacity	Name of GSS	Cap. Bank to be Diverted	Cost of Diversion/ Bank	Amount (Rs. Lac)
1	132 KV GSS Pilani (T&C Babai)	3*5.43 MVAR	132 KV GSS Mahapalwas (T&C Babai)	1*5.43 MVAR, Make-Universal	19.73	19.73
2	132 KV GSS Bidiyad (T&C Merta)	2*5.43 MVAR	220 KV GSS Kuchhera (T&C Merta)	1*5.43 MVAR, Make-Shreem	19.73	19.73
3	132 KV GSS Bagot (T&C Merta)	2*5.43 MVAR	132 KV GSS Merta Road (T&C Merta)	1*5.43 MVAR, Make-Universal	19.73	19.73
4	220 KV GSS Hamirgarh (T&C Bhilwara)	2*5.43 MVAR	132 KV GSS Kachola (T&C Bhilwara)	1*5.43 MVAR, Make-Shreem	19.73	19.73
5	132 KV GSS Bagidora (T&C, Chittor)	2*5.43 MVAR	132 KV GSS Dalot (T&C Chittor)	1*5.43 MVAR, Make-ABB	19.73	19.73
6	132 KV GSS Rishabhdeo (T&C, Udaipur)	2*5.43 MVAR	132 KV GSS Bhopalsagar (T&C, Chittor)	1*5.43 MVAR, Make-Universal	19.73	19.73
7	220 KV GSS Madri (T&C, Udaipur)	3*5.43 MVAR	220 KV GSS Sawa (T&C Chittor)	1*5.43 MVAR, Make- BHEL	19.73	19.73
8	132 KV GSS Pratapnagar (T&C Udaipur)	3*5.43 MVAR	220 KV GSS Chittor (T&C Chittor)	1*5.43 MVAR, Make- ABB	19.73	19.73
	TOTAL			43.44 MVAR (8x5.43 MVAR)		157.84

Abstract for Diversion of existing Capacitor Banks under Jodhpur Zone

S.No.	Diverted from		Diverted to			
	Name of the GSS	Present Existing Shunt Capacity	Name of the GSS	Present Existing Shunt Capacity		
1	132 KV GSS Banar (T&C Jodhpur)	2 x 5.43 MVAR	132 KV GSS Kirmarsariya (T&C Jodhpur)	1x5.43 MVAR BHEL Make	19.73	19.73
2	132 KV GSS Barmer (T&C Barmer)	2 x 5.43 MVAR	132 KV GSS Juna Meetha Khera (T&C Barmer)	1x5.43 MVAR ABB Make	19.73	19.73
3	132 KV GSS Pugal Road (T&C Bikaner)	2 x 5.43 MVAR	132 KV GSS RD-710 (T&C Bikaner)	1x5.43 MVAR BHEL Make	19.73	19.73
	TOTAL			16.29 MVAR (3x5.43 MVAR)		59.19

194th OCC MEETING: AGENDA

Sub.: Calibration and testing of Interface Energy Meters installed at Generating stations regarding.

As per CEA metering Regulations 2006 clause 6. (Ownership of meters), (a) "**All interface meters installed at the points of interconnection with Inter-State Transmission System (ISTS) for the purpose of electricity accounting and billing shall be owned by CTU.**

Further, as per CEA metering regulations 2019, clause 14 (1)

"(b) All Interface Meters shall be tested on-site using accredited test laboratory for routine accuracy testing at least once in five years and recalibrated if required. Provided that these meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters.

(c) Testing and calibration of Interface Meters shall be carried out in the presence of the representatives of the supplier and buyer by giving the advance notice to the other party regarding the date of testing."

NHPC operates 14 hydro power stations in Northern region and in compliance of CEA metering Regulations 2006, clause 7 and subsequent amendment vide CEA metering Regulations 2019, the Interface energy meters at these power stations were installed by PGCIL/CTU and its maintenance & replacement, whenever required is also being carried out by PGCIL/CTU.

As per records available with NHPC, the last calibration of interface meters installed at various Power Stations has been done by PGCIL during 2016 and the next calibration/testing of these IEMs is due as per above CEA Metering Regulations.

Accordingly, CTU was requested vide our letter dated 17/02/2022 **(Annexure-I)** for carrying out the testing/calibration of IEMs installed at NHPC Power Stations. The reply received from CTU vide their email dated 17/02/2022 is attached **(Annexure-II).**

Further, NHPC vide letter dated 14/03/2022, requested PGCIL for the same **(Annexure-III),** the reply received from PGCIL vide their email dated 22/03/2022 is attached **(Annexure-IV).**

CTU and PGCIL vide above mentioned replies have expressed inability to carrying out the calibration of IEMs.

Since, all interface meters installed at NHPC Power Stations are required to be tested and calibrated as per the provisions of the regulations, as five years have already elapsed, therefore, it is requested that OCC forum may issue a guideline to fix the responsibility for carrying out the calibration/testing of SEMs which are owned by PGCIL/CTU.

****

ANNEXURE - I

एनएचपीसी लिमिटेड
(भारत सरकार का उद्यम)

NHPC Limited
(A Government of India Enterprise)

एक कदम स्वच्छता की ओर

फोन/Phone :

संदर्भ सं./Ref. No. एनएच/ओ&एम/जीएमसी/23/16-18

दिनांक/Date : 17/02/2022

The Sr. General Manager
CTU
Powergrid Corporation of India Limited
Gurgaon (Haryana).

Kind attn.: Sh. H S Kaushal (Email: hsk@powergrid.in)

Sub.: Calibration and testing of Interface Energy Meters installed at Generating stations (NHPC) regarding.

महोदय,

As per Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 & its subsequent amendments, the interface energy meters at generating stations are being installed by the PGCIL/CTU.

NHPC is operating fourteen no. of ISGS hydro Power Stations i.e. Bairasiul, Salal, Tanakpur, Chamera-1, Uri-1, Chamera-2, Dhauliganga, Dulhasti, Sewa-2, Chamera-3, Uri-2, Parbati-3, Kishanganga and Parbati-2 in Northern Region. As per the record available with NHPC, the last calibration of interface meters was done during 2016.

As per CEA metering regulations, 2006, clause 18 (b) (Calibration and periodical testing of meters) "***all interface meters shall be tested at least once in five years***". As DSM (Deviation Settlement Mechanism) and REA (Regional Energy Account) is being issued by NRPC based on the energy recorded by the interface meters installed at generating stations and further billing to the beneficiaries being done by the generators on the basis of REA issued by RPC. Since, accuracy of energy meters will impact generators/DISCOMS commercially. Therefore, the calibration and testing of interface meters needs to be carried out as per CEA metering regulations.

In view of above, PGCIL/CTU is requested that all interface meters installed at NHPC Power Stations (As per Annexure-I) be calibrated and tested as five years have already elapsed since last calibration.

धन्यवाद,

भवदीय,

(सूरज धीमान)
महाप्रबंधक (ओ&एम)

Copy to:

External

1. **Member Secretary, NRPC,** Northern Regional Power Committee, 18A, Shahid Jit Singh Marg, Katwaria Sarai, New Delhi-110016.
2. **Sr. General Manager (Commercial),** NRLDC, Katwaria Sarai, New Delhi-110016

ANNEXURE - II

Zimbra hod-om-co@nhpc.nic.in

RE: Calibration and testing of Interface Energy Meters installed at Generating stations (NHPC) regarding.

From : H S Kaushal {एच.एस. कौशल} <hsk@powergrid.in> Thu, Feb 17, 2022 06:09 PM

Subject : RE: Calibration and testing of Interface Energy Meters installed at Generating stations (NHPC) regarding. 2 attachments

To : O&M <hod-om-co@nhpc.nic.in>, ms-nrpc <ms-nrpc@nic.in>, somara lakra <somara.lakra@posoco.in>, neeraj kumar <neeraj.kumar@posoco.in>

Cc : D K Karma {डी.के. कर्मा} <dinesh@powergrid.in>, Sangita Sarkar {संगीता सरकार} <jana.sangita@powergrid.in>

Dear Sir/Madam,

As per the CEA metering Regulation 2006 clause no. 10, "**Operation, Testing and Maintenance of IEMs shall be carried out by the generating company or the licensee, as the case may be".** Further as per CEA metering regulation 2019, clause no 18.(b) & (c)

"**(b) All Interface Meters shall be tested on-site using accredited test laboratory for routine accuracy testing at least once in five years and recalibrated if required. Provided that these meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters.**

c) Testing and calibration of Interface Meters shall be carried out in the presence of the representatives of the supplier and buyer by giving the advance notice to the other party regarding the date of testing."

In view of the above , it is clarified that concerned agencies (i.e. generating company/licensee) shall carry out the routine test and if required calibration shall be carried out by the agencies (buyer) in presence of supplier (OEM).

Thanks & Regards,

H. S. Kaushal,
Sr. GM (CTU),
Central Transmission Utility of India Ltd.,
1th Floor, Saudamini,
Plot No.-2, Sector-29,
Gurgaon (Haryana) – 122001.
Phone No.- +91-124-2822113.
Mo. +91-9599291535

ANNEXURE-II

CIN NO-L40101HR1975GOI032564

एनएचपीसी लिमिटेड
(भारत सरकार का उद्यम)
NHPC Limited
(A Govt. of India Enterprise)

ओ&एम विभाग / O&M Division
एनएचपीसी कार्यालय परिसर/ NHPC Office Complex
सेक्टर-33, फरीदाबाद/ Sector-33, Faridabad
हरियाणा- 121003 / Haryana-121003
Email-nhpcgmc@gmail.com
फोन: 0129-2271419/ फैक्स: 0129-2272413

एनएच/ओ&एम/जीएमसी/SEM/23/36-39.

14/03/2022

The Sr. General Manager
Asset Management
Power grid Corporation of India Limited
Gurgaon (Haryana).

Kind attn.: Sh. M K Jha (Email: mkjha@powergrid.in)

Sub.: Calibration and testing of Interface Energy Meters installed at Generating stations (NHPC) regarding.

महोदय,

Fourteen hydro plants are being operated by NHPC in Northern Region. In compliance of CEA metering Regulations 2006, clause 7 and subsequent amendment vide CEA metering Regulations 2019, the Interface meters at these Power Stations were installed by PGCIL/CTU and its maintenance are also being done by PGCIL/CTU.

As per CEA metering Regulations 2006 clause 6. (Ownership of meters), **"All interface meters installed at the points of interconnection with Inter-State Transmission System (ISTS) for the purpose of electricity accounting and billing shall be owned by CTU.**

Further, as per CEA metering regulations 2019, clause 14 (1)

"(b) All Interface Meters shall be tested on-site using accredited test laboratory for routine accuracy testing at least once in five years and recalibrated if required. Provided that these meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters.

(c) Testing and calibration of Interface Meters shall be carried out in the presence of the representatives of the supplier and buyer by giving the advance notice to the other party regarding the date of testing."

As per records available with NHPC, the last calibration of interface meters installed at various Power Stations have been done by PGCIL during 2016. Since the next calibration/testing of these IEMs is due as per CEA Metering Regulations, therefore, CTU was requested vide our letter dated 17/02/2022 (copy of attached) for carrying out the testing/calibration of IEMs installed at NHPC Power Stations. The reply received from CTU is attached.

In view of above, it is requested that all interface meters installed at NHPC Power Stations be tested and calibrated as five years have already elapsed since last calibration/testing and a schedule in this regard be also provided.

धन्यवाद.

भवदीय ,

सूरज

(सूरज धीमान)
महाप्रबंधक (ओ&एम)

Copy to:

1. Member Secretary, NRPC, Northern Regional Power Committee, 18A, Shahid Jit Singh Marg, Katwaria Sarai, New Delhi-110016.
2. Sr. General Manager (Commercial), NRLDC, Katwaria Sarai, New Delhi-110016
3. Sr.GM(CTU), Powergri, Gurgaon. (mkkaushal@powergrid.in).

ANNEXURE-IV

Zimbra hod-om-co@nhpc.nic.in

Calibration and Testing of Interface Energy Meters installed at Generating stations (NHPC) regarding

From : Manoj Kumar Jha {मनोज कुमार झा} <mkjha@powergrid.in>

Tue, Mar 22, 2022 06:37 PM

3 attachments

Subject : Calibration and Testing of Interface Energy Meters installed at Generating stations (NHPC) regarding

To : hod-om-co@nhpc.nic.in

Cc : H S Kaushal {एच.एस. कौशल} <hsk@powergrid.in>, vijayk@nhpc.nic.in, somara lakra <somara.lakra@posoco.in>, Rakesh Kumar {राकेश कुमार} <rakeshkumar@powergrid.in>, A P Gangadharan {ए.पी. गंगाधरन} <apganga@powergrid.in>

Dear Sir,

This in reference to letter ref: NH/O&M/GMC/23/36-39 dtd: 14th March 2022, regarding calibration &testing of IEMs installed at NHPC. It is pertinent to mention that the matter pertaining to IEMs are to be dealt by CTU and it is observed that subject matter has already been replied by CTU vide email dtd:17th Feb,2022.

सादर/Regards

(मनोज कुमार झा)
Manoj Kumar Jha
Sr. General Manager (Asset Management)
Corporate Centre,Gurgaon
POWERGRID
Mobile:+91-9135092060/9431820298

पावरग्रिड
POWERGRID

Azadi Ka Amrit Mahotsav

From: O&M <hod-om-co@nhpc.nic.in>
Sent: Monday, March 14, 2022 17:14
To: Manoj Kumar Jha { मनोज कुमार झा} <mkjha@powergrid.in>; ms-nrpc <ms-nrpc@nic.in>; H S Kaushal { एच.एस. कौशल} <hsk@powergrid.in>; somara lakra <somara.lakra@posoco.in>

Annexure

FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN UTTAR PRADESH

Sl. No	Transmission element to be opened	Affected Area	Approx load relief (MW)	Remarks
1	220kV Meerut- Gajraula	Gajraula	100	Radial feeder, Alternate supply available from 220kV Sambhal, MW loading limited to 25MW.
2	220kV Baghpat (PG)-Baghpat (UP) D/C	Baghpat	60	Radial feeder, Alternate supply available from 132kV Source
3	220kV Allahabad (PG)-Jhusi	Jhusi	200	Radial feeder, Alternate supply available from 220kV Phoolpur
4	220kV Sohawal (PG)-Barabanki D/C	Barabanki	120	Radial feeder
5	220KV Mainpuri (PG)-Neemkarori D/C	Farrukhabad	120	--do--
6	220kV Gorakhpur (PG)-Gola D/C	Gorakhpur	80	--do--
7	132kV Balia (PG)- Bansdeeh	Balia	15	--do--
8	132kV Balia (PG)-Sikandrapur	Balia	30	--do--

FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN PUNJAB

S No.	Transmission element to be opened	Power supply interruption in	Approx Relief (MW)	Remarks
1	132 kV Jamalpur-Ghulal D/C	Ghulal	91	No alternate supply available
2	66 kV Jamalpur – Chandigarh Road,Ludhiana	Chandigarh Road, Ludhiana	37	These feeders are replacement of Jamalpur-Miliarganj D/C as reported by PSTCL by Memo No. 1162/T-257 dated 23-11-12. In review, it was found that df/dt and UFR was already installed on Jamalpur-Miliarganj D/C
	66 kV Jamalpur-Sherpur, Ludhiana	Sherpur, Ludhiana	13	
3	220/66 kV ICT1, 2 & 3 at Sangrur	Sangrur and adjoining areas	166	No alternate supply available
4	132 kV Amritsar-Naraingarh D/C	Amritsar and Adjoining areas	100	No alternate supply available
5	220 kV Jalandhar-Kanjli D/C	Kapoorthala	64	No alternate supply available

FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN JAMMU & KASHMIR

S No.	Transmission element to be opened	Power supply interruption in	Approx Relief (MW)	Remarks
1	220 kV Kishenpur-Udhampur D/C 220 kV Sarna-Udhampur	Udhampur	100-150	Limited alternate feed may be available from 132 kV. Generation at Chenani HEP may be affected.
2	220 kV Kishenpur-Barn D/C	Jammu	100	Limited alternate feed may be available from Jammu
3	220 kV Sarna-Hiranagar 220 kV Salal-Jammu D/C	Jammu & Hiranagar	300-400	Entire Jammu region could be affected. Alternate feed may be available from Barn and Udhampur. Generation at Sewa HEP may get affected
4	220 kV Wagoora-Ziankote D/C	Kashmir valley	200-300	Limited alternate feed may be available from Pampore. Generation at Lower Jhelum could get affected
5	220 kV Wagoora-Ziankote D/C 220 kV Wagoora-Pampore D/C 220 kV Kishenpur-Mir Bazar 220 kV Kishenpur-Ramban	Kashmir valley	400-500	Though Uri generation may be evacuated through 400 kV Wagoora-Kishenpur D/C but the security would be affected.

FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN RAJASTHAN

S No.	Transmission element to be opened	Power supply interruption in	Approx Relief (MW)	Remarks
1	220 kV Bhiwadi (PG)-Kushkhera 220 kV Neemrana (PG)-Kushkhera	Kushkhera and Kishangarh Bas	170	Limited alternate supply may be available. 220 kV Alwar-K. G. Bas-Kushkhera line may get overloaded
2	220 kV Neemrana (PG)-Neemrana 220 kV Bhiwadi (PG)-Neemrana	Neemrana	180	Limited alternate supply may be available from Kotputli & Behror.
3	220 kV Khelna (PG)-Manoharpur	Manoharpur	100	Limited alternate supply of Manoharpur may be available from Kotputli
4	220 kV Anta-Lalsot 220 kV Anta-Sawai Madhopur	Lalsot Sawaimadhopur	180	Limited alternate supply may be available from Dausa
5	220 kV Dadri-Khetri-I 220 kV Dadri-Khetri-II 220 kV Hissar-Chirawa	Khetri Chirawa	120	Limited alternate supply of Khetri and Chirawa may be available from other station

FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN HARYANA

S No.	Transmission element to be opened	Power supply interruption in	Approx Relief (MW)	Remarks
1	Feeders in Schedule A Panipat: a) 33kV Panipat-Swah(Chhajpur) b) 33kV Panipat-Untla c) 33kV Panipat-Israna d) 33kV Panipat-Narayana e) 33kV Panipat-Sanoli road	Panipat	150 (Approximately)	Radial Lines
2	Feeders in Schedule B Kurukshetra: a) 33kV Kurukshetra-Mathana b) 33kV Kurukshetra-Ajrana c) 33kV Kurukshetra-Kirmich	Kurukestra, Dhulkote,	150 (approximately)	Radial Lines
	d) 11kV Kurukshetra-Bahadurpura e) 11kV Kurukshetra-Pipli Dhulkote: a) 66kV Dhulkote-Ambala b) 66kV Dhulkote-Babyal			
3	132kV Kundli line emanating from Narela BBMB	Rai-Sonepat	55	No alternate supply to Kundli
4	220/132kV, 220/66 kV ICTs at BBMB stations such Hissar, Ch. Dadri, Kurukshetra, Jagadri. Dhulkote, can be opened. However, many 132kV, 66 kV and below feeder are covered under Schedule A & B			

FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN HIMACHAL PRADESH

S.No.	**Transmission element to be opened**	**Power supply interruption in**	**Approx. Relief (MW)**	**Remarks**
1	66kV Bhakra-Rakkar	Rakkar/Una	10-18	Details awaited
2	66kV Pong- Sansarpur	Sansarpur Terrace	2-5	Details awaited
3	220kV Dehar-Kangoo 132kV Dehar-Kangoo	Kunihar/Shimla	80-140	Limited alternate supply available from 132kV Hamirpur. 400/220kV Dehar ICT may be overloaded.
4	220kV Khodri-Majri 132kV Kulhal-Giri	Giri/Solan	80-140	Limited Alternate supply may be available from 132kV Kunihar. Essential load at Majri: Oxygen plant, administrative offices etc.
5	220kV Nallagarh-Nangal D/C	Nangal/Nallagarh/Baddi	180-315	Industrial load of Nangal may be affected.
6	66kV Pinjore-Parwanoo	Parwanoo	5-13	Alternate supply from Solan.

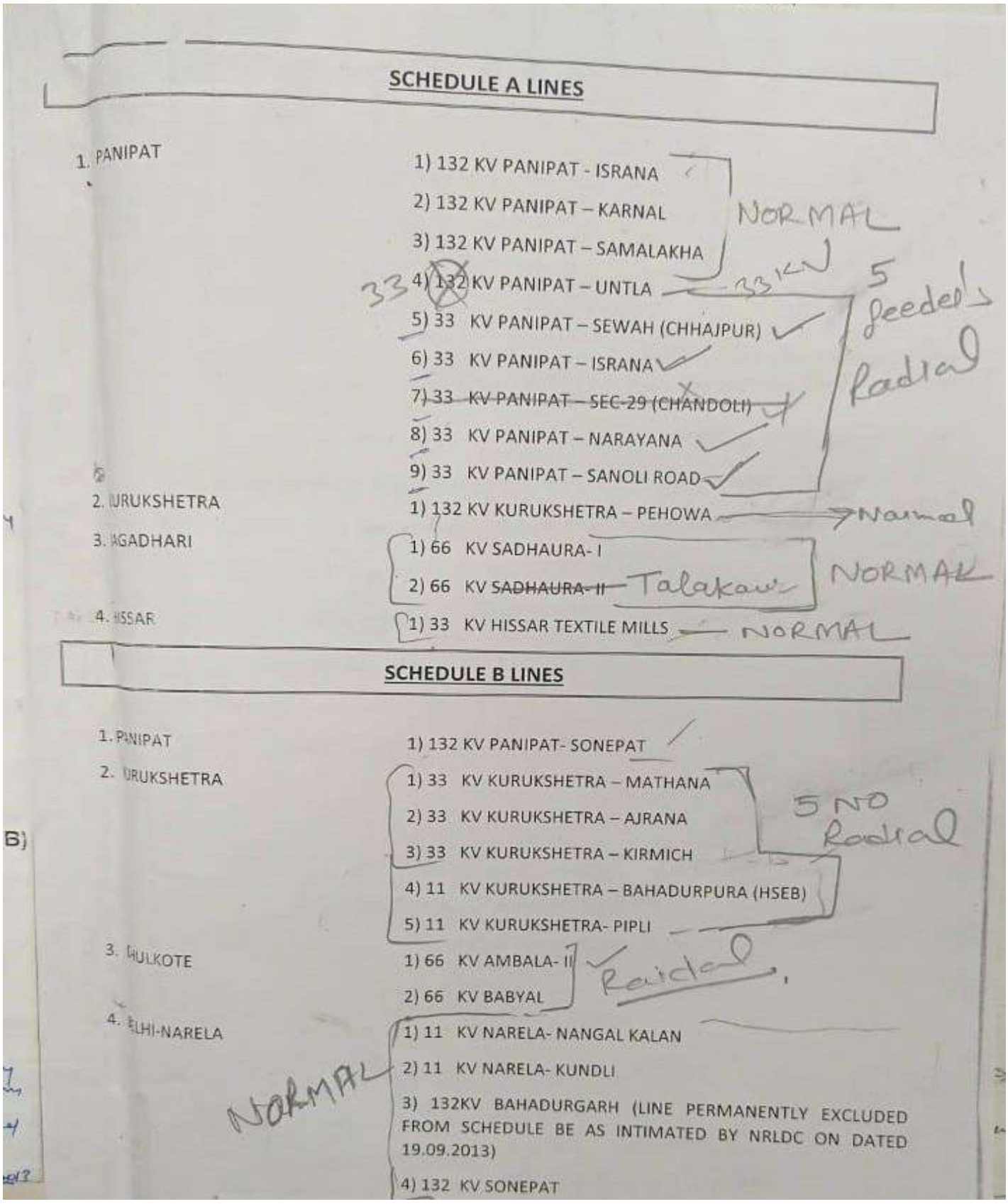
FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN UT CHANDIGARH

S No.	Transmission element to be opened	Power supply interruption in	Approx Relief (MW)	Remarks
1	220 kV Nalagarh-Kishengarh-D/C	Chandigarh	100-200	No alternate supply available
2	66 kV Mohali- Sector 39 D/C	Chandigarh	30-60	No alternate supply available
3	66 kV Mohali- Sector 56 Ckt-1	Chandigarh	20-50	No alternate supply available

FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN UTTARAKHAND

S No.	Transmission element to be opened	Power supply interruption in	Approx Relief (MW)	Remarks
1	220 kV Bareilly- Pantnagar	Pant Nagar/ Haldwani	200	Limited alternate supply may be available from 132 kV Kashipur to Haldwani
2	132 kV Nazibad-Kotdwar	Kotdwar	20-50	Generation of Chilla P/H may be interrupted
3	220/132 kV Sitarganj ICTs 132 kV Dohna-Sitarganj 132 kV Dohna -Kichha	Sitarganj, Kichha	50-100	Generation of Khatima will interrupt
4	400/220 kV Roorkee ICTs 220 kV Nara-Roorkee	Roorkee	100-200	Grid disturbance may occur due to overloading of 220kV Rishikesh-Sidkul & 240MVA ICT at 400kV Rishikesh

FEEDERS FOR PHYSICAL REGULATION OF SUPPLY IN BBMB PREMISES



SCHEDULE A LINES

1. PANIPAT	1) 132 KV PANIPAT - ISRANA
	2) 132 KV PANIPAT – KARNAL
	3) 132 KV PANIPAT – SAMALAKHA
	4) 132 KV PANIPAT – UNTLA
	5) 33 KV PANIPAT – SEWAH (CHHAJPUR)
	6) 33 KV PANIPAT – ISRANA
	7) 33 KV PANIPAT – SEC-29 (CHANDOLI)
	8) 33 KV PANIPAT – NARAYANA
	9) 33 KV PANIPAT – SANOLI ROAD
2. URUKSHETRA	1) 132 KV KURUKSHETRA – PEHOWA
3. AGADHARI	1) 66 KV SADHAURA- I
	2) 66 KV SADHAURA- II
4. HISSAR	1) 33 KV HISSAR TEXTILE MILLS

SCHEDULE B LINES

1. PANIPAT	1) 132 KV PANIPAT- SONEPAT
2. URUKSHETRA	1) 33 KV KURUKSHETRA – MATHANA
	2) 33 KV KURUKSHETRA – AJRANA
	3) 33 KV KURUKSHETRA – KIRMICH
	4) 11 KV KURUKSHETRA – BAHADURPURA (HSEB)
	5) 11 KV KURUKSHETRA- PIPLI
3. MULKOTE	1) 66 KV AMBALA- II
	2) 66 KV BABYAL
4. DELHI-NARELA	1) 11 KV NARELA- NANGAL KALAN
	2) 11 KV NARELA- KUNDLI
	3) 132KV BAHADURGARH (LINE PERMANENTLY EXCLUDED FROM SCHEDULE BE AS INTIMATED BY NRLDC ON DATED 19.09.2013)
	4) 132 KV SONEPAT

National Load Despatch Centre
Import Capability of Uttar Pradesh for May 2022

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2022 to 31st May 2022	00-24	15100	600	14500	8420	6080		https://www.upsldc.org/documents/20182/0/ttc_atc_24-11-16/4c79978e-35f2-4aef-8c0f-7f30d878dbde
Limiting Constraints		N-1 contingency of 400/220kV Sohawal (PG), Gorakhpur (UP), Sarnath, Lucknow (PG) ICTs						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of Rajasthan for May 2022

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2022 to 31st May 2022	00-24	6200	300	5900	3400	2500		https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
Limiting Constraints		N-1 contingency of 400/220kV Chittorgarh, Jodhpur, Bikaner, Ajmer, Merta and Bhinmal ICTs						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of Haryana for May 2022

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2022 to 31st May 2022	00-24	8500	600	7900	3000	4900		https://hvpn.org.in/#/atcttc
Limiting Constraints		N-1 contingency of 400/220kV ICTs at Deepalpur and Kurukshetra(PG)						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of Delhi for May 2022

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2022 to 31st May 2022	00-24	6800	300	6500	4150	2350		
Limiting Constraints		N-1 contingency of 400/220kV Mundka and Bamnauli ICTs.						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of HP for May 2022

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2022 to 31st May 2022	00-24	1400	100	1300	1400	-100		https://hpsldc.com/mrm_category/ttc-atc-report/
Limiting Constraints		N-1 contingency of 400/220kV Nallagarh ICTs. High loading of 220kV Nallagarh-Upernangal D/C and 220kV Hamirpur-Hamirpur D/C						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

National Load Despatch Centre
Import Capability of Uttarakhand for May 2022

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2022 to 31st May 2022	00-24	1600	100	1500	1020	480		- http://uksldc.in/transfer-capability
Limiting Constraints		N-1 contingency of 400/220kV Kashipur ICTs. High loading of 220kV Roorkee-Roorkee and 220kV CBGanj-Pantnagar lines						

80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

Annexure-B.III

RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED.

[Corporate Identity Number (CIN):U40109RJ2000SGC016485]

(Regd. Office: Vidyut Bhawan, Jan Path, Jyoti Nagar, Jaipur - 302 005)

OFFICE OF THE SUPERINTENDING ENGINEER (PROJECT & PLANNING)

+91-141-2740623, Fax:+91-141-2740794;

e-mail: se.pp@rvpn.co.in; website:www.rvpn.co.in

RVPN

An ISO 9001:2000 Certified Company

No. RVPN/SE(P&P)/XEN-2(P&P)/AE-2/ F. /D 2484 Jaipur, Dt. 24/3/22

To

The General Manager (NRLDC)
Power System Operation Corporation Ltd. (POSOCO)
18-A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai
New Delhi-110016.

Sub:- Proposed SPS for 400/220 kV ICTs at RVPN's 400/220 kV ICTs At 400 KV GSS Ajmer/Merta/Chittorgarh

On the above captioned subject, please find attached the proposed SPS for 400/220 KV ICTs at RVPN's 400/220 kV ICTs At 400 KV GSS Ajmer/Merta/Chittorgarh alongwith schematic diagram and load details for consideration and approval.

(K.K. Meena)
Chief Engineer (PP&D)
RVPNL, Jaipur.

Copy to the following for information and necessary action please-

1. The Member Sceratry (NRPC), 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016
2. The Chief Engineer (LD), RVPN, Jaipur.
3. The Chief Engineer, Power System Planning & Appraisal-I Division, CEA, Sewa Bhawan, RK Puram-I, New Delhi-110066
4. The Superintending Engineer (Operation), NRPC, 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016.

Encl: As above

Chief Engineer (PP&D)
RVPNL, Jaipur

PROPOSED SPS FOR 400/220 KV ICTS AT RVPN'S 400/220 KV ICTS AT 400 KV GSS AJMER/MERTA/CHITTORGARH

1) SPS for 2x315 MVA, 400/220 kV ICTs at 400 kV GSS Ajmer

- Peak Loads recorded on the 400/220 kV ICTs and 220 kV lines associated with the 400 kV GSS Ajmer are detailed below in Table 1:-

Table 1: Load Details on ICTs and Transmission Lines Associated with 400 kV GSS Ajmer

S. No.	Name of 220 kV line/ICTs	Peak Load	Average Load	Remark
1	315 MVA, 400/220 kV ICT-I	275 MVA	270 MVA	
2	315 MVA, 400/220 kV ICT-III	286 MVA	280 MVA	
3	220 kV Ajmer-Kishangarh line	237 MVA	153.08MVA	Tripping of this circuit will feed power to 220 kV GSS Kishangarh from 400 kV GSS Heerapura (via 220 kV GSS Phulera) which has sufficient transformer capacity.
4	220 kV Ajmer-Beawer line	226 MVA	159.42 MVA	Since, 220 kV GSS Beawer has alternative connectivity with KTPS, RAS (CPP), and western Rajasthan, hence no overloading will be observed on tripping of this line.
5	220 kV Ajmer-Jethana Ckt-I line	117 MVA	95.2 MVA	Tripping of these circuit will increase loading on the ICTS at 400 kV GSS Merta
6	220 kV Ajmer-Jethana Ckt-II line	140 MVA	95.2 MVA	
7	220 kV Ajmer (400 kV GSS)-Ajmer (220 kV SS) Ckt-I line	118 MVA	83 MVA	These lines feed power to Ajmer City, hence cannot be considered in SPS.
8	220 kV Ajmer (400 kV GSS)-Ajmer (220 kV SS) Ckt-II line	139 MVA	83 MVA	
9	220 kV Ajmer-Bherunda Ckt-I line	82 MVA	57 MVA	As 220 kV GSS Bherunda is radially connected with 400 kV GSS Ajmer, hence tripping these lines will help to reduce load.
10	220 kV Ajmer-Bherunda Ckt-II line	82 MVA	57 MVA	

- Power Map of Transmission system at 400 kV GSS Ajmer is shown in Fig. 1.

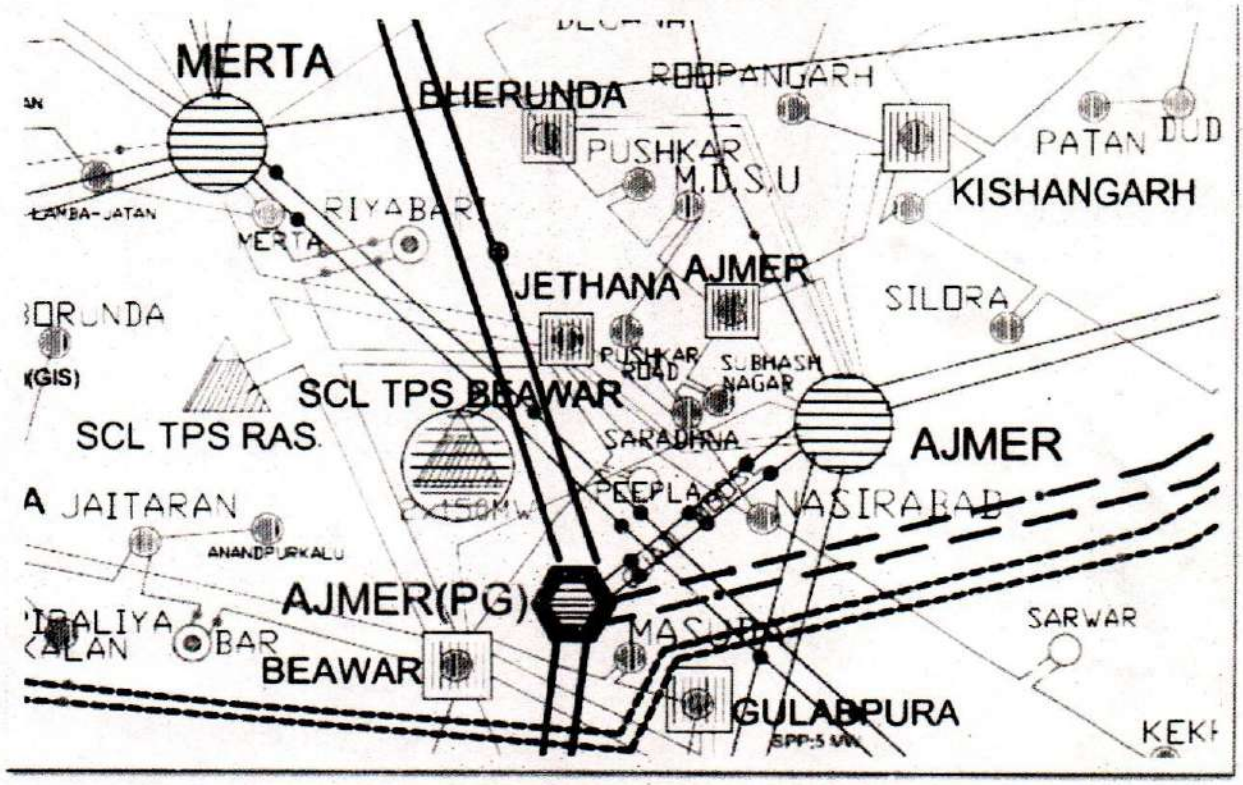


Fig. 1 Power Map of Ajmer Region

- After detailed analysis of above loading conditions & grid interconnection issues, following lines was considered for tripping as soon as any one of the 2x315 MVA, 400/220 kV ICTs is tripped on fault/protection:-
  - 220 kV Ajmer-Beawer line
  - 220 kV Ajmer-Kishangarh line
  - 220 kV Ajmer-Bherunda Circuit-I
  - 220 kV Ajmer-Bherunda Circuit-II
- Tripping command for the 220 kV lines are to be taken from the 86 relay installed on 220 kV side of both the 2x315 MVA, 400/220 kV ICTs which will be utilized to trip the above 220 kV lines when any one ICTs trip on fault/protection.
- Schematic diagram for tripping of 220 kV lines included in SPS at 400 kV GSS Ajmer is shown below:-

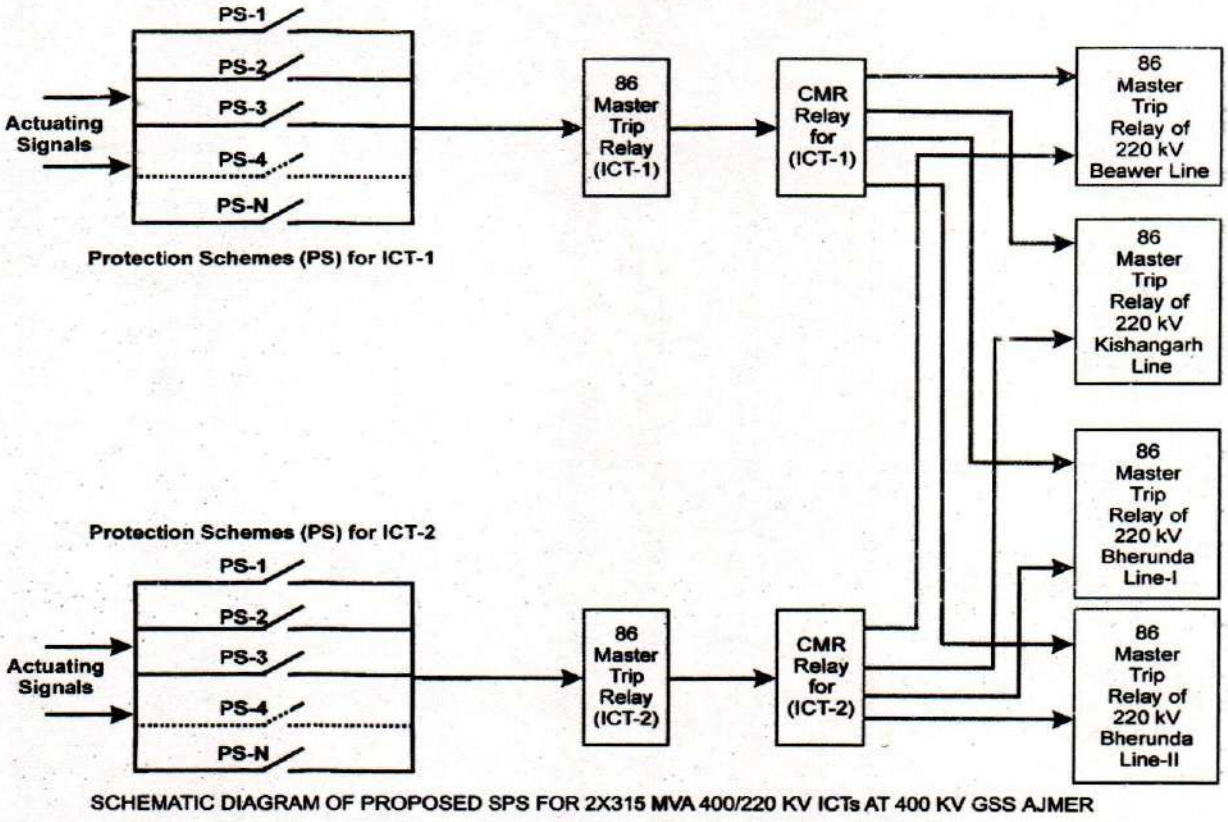


Fig. 2 Schematic Diagram of Proposed SPS for ICTs at 400 kV GSS Ajmer

2) SPS for 2x315 MVA, 400/220 kV ICTs at 400 kV GSS Merta

- Peak Loads recorded on the 400/220 kV ICTs and 220 kV lines associated with the 400 kV GSS Merta are detailed below in Table 2:-

Table 2: Load Details on ICTs and Transmission Lines Associated with 400 kV GSS Merta

S. No.	Name of 220 kV line/ICTs	Peak Load	Average Load	Remark
1	315 MVA, 400/220 kV ICT-I	288 MVA	212 MVA	
2	315 MVA, 400/220 kV ICT-II	294 MVA	236 MVA	
3	220 kV Merta-Makrana line	125 MW	85 MW	Makrana is also connected with 400 kV GSS Deedwana through Kuchaman city
4	220 kV Merta-Kuchera line	203 MW	162 MW	Kuchera is also connected with BLTPS through Nagaur
5	220 kV Merta-Bhopalgarh line	208 MW	169 MW	This line cannot be included in SPS, as tripping of this line would overload ICTs at 400 kV GSS Jodhpur
6	220 kV Merta-Jethana line	136 MW	89 MW	Jethana is also connected with Ajmer and RAS

- Power Map of Transmission system at 400 kV GSS Merta is shown in Fig. 3.

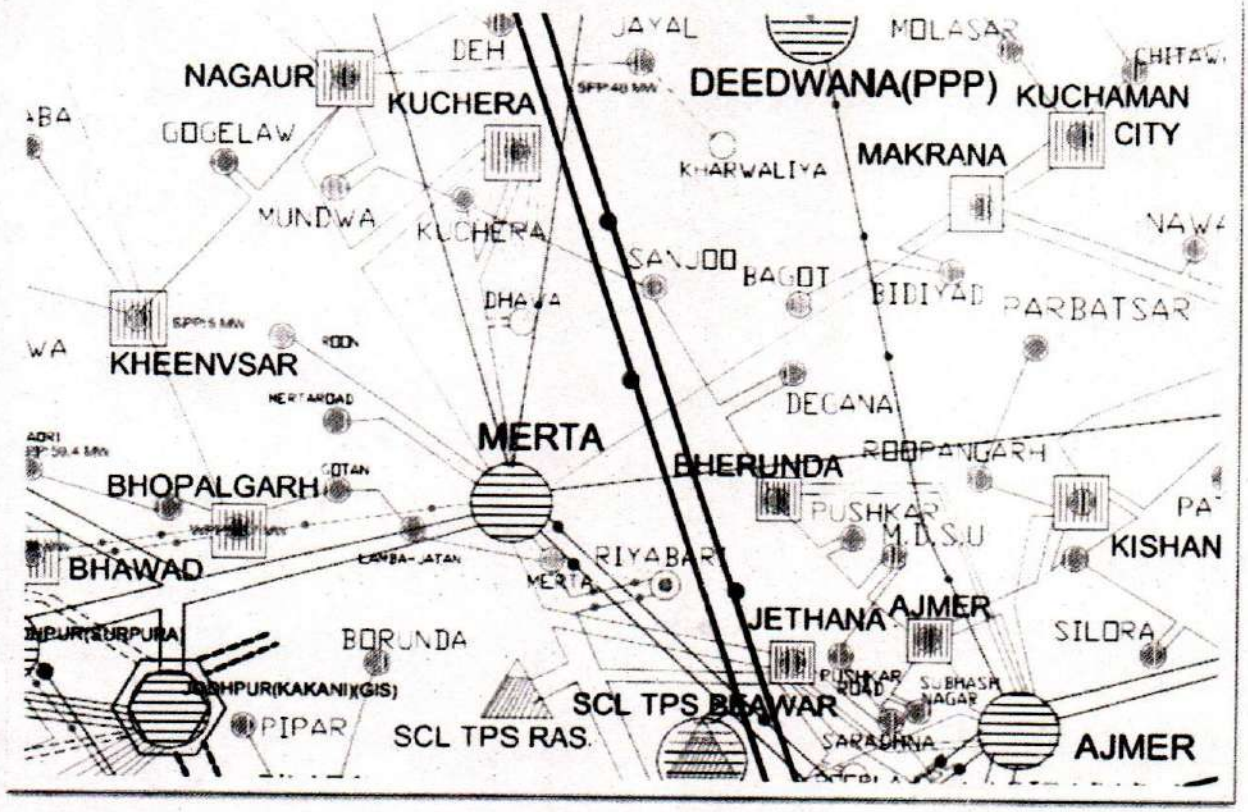


Fig. 3 Power Map of Merta Region

- After detailed analysis of above loading conditions & grid interconnection issues, following lines will be considered for tripping as soon as any one of the 2x315 MVA, 400/220 kV ICTs is tripped on fault/protection:-
  - 220 kV Merta-Makrana line
  - 220 kV Merta -Kuchera line
  - 220 kV Merta –Jethana line
- Tripping command for the 220 kV lines are to be taken from the 86 relay installed on 220 kV side of both the 2x315 MVA, 400/220 kV ICTs which will be utilized to trip the above 220 kV lines when any one ICTs trip on fault/protection.
- Schematic diagram for tripping of 220 kV lines included in SPS at 400 kV GSS Merta is shown below in Fig. 4:-

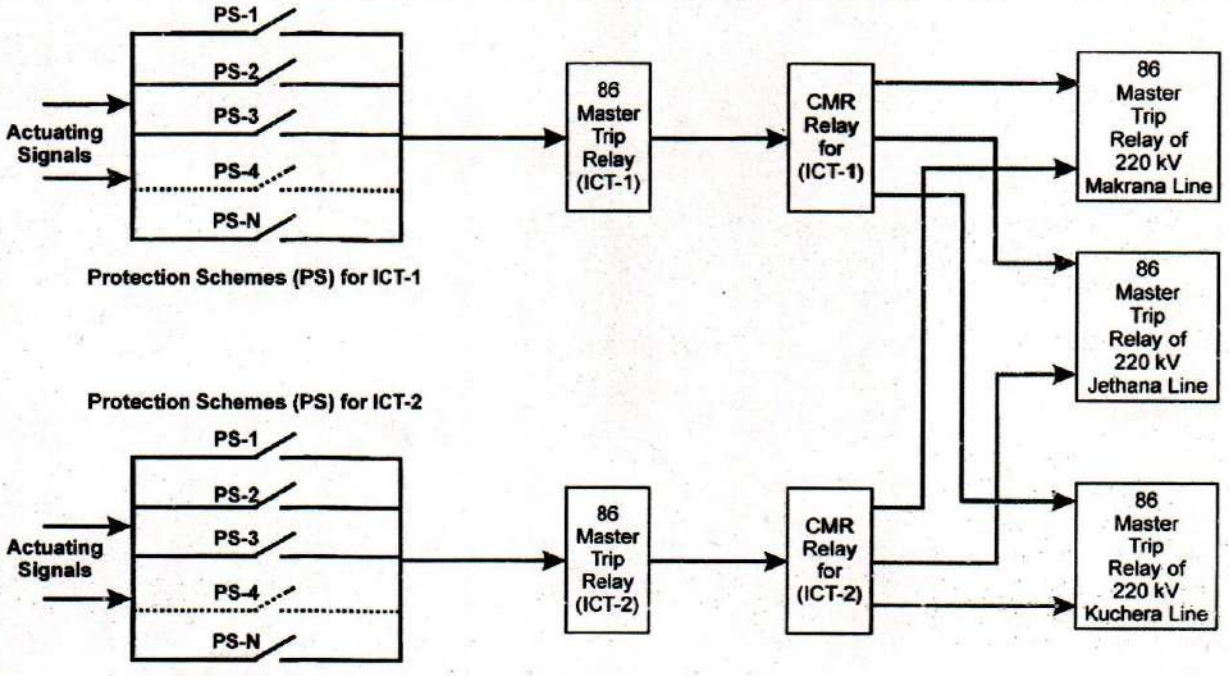


Fig. 4 Schematic Diagram of Proposed SPS for ICTs at 400 kV GSS Merta

3) SPS for 2x315 MVA, 400/220 kV ICTs at 400 kV GSS Chittorgarh

- Peak Loads recorded on the 400/220 kV ICTs and 220 kV lines associated with the 400 kV GSS Chittorgarh are detailed below in Table 3:-

Table 3: Load Details on ICTs and Transmission Lines Associated with 400 kV GSS Chittorgarh

S. No.	Name of 220 kV line/ICTs	Peak Load	Average Load	Remark
1	315 MVA, 400/220 kV ICT-I	251.55	240 MW	
2	315 MVA, 400/220 kV ICT-II	296.56 MW	250 MW	
3	220 kV Chittorgarh-Chittorgarh Line	194 MW	110 MW	These GSS (Chiitorgarh, Sawa, Nimbahera) are included in existing islanding scheme of RAPP-A&B
4	220 kV Chittorgarh-Sawa Ckt-I Line	131 MW	102 MW	
5	220 kV Chittorgarh- Sawa Ckt-II Line	135 MW	105 MW	
6	220 kV Chittorgarh-Nimbahera Line	222 MW	95 MW	
7	220 kV Chittorgarh-Pratapgarh Line	122 MW	72 MW	Wind generation is available at Dalot and Pratapgarh to meet local load)
8	220 kV Chittorgarh-Debari Line	300 MW	195 MW	RAPP-A&B lines at Debari are on separate bus using split bus arrangement

- Power Map of Transmission system at 400 kV GSS Chittorgarh is shown in Fig. 5.

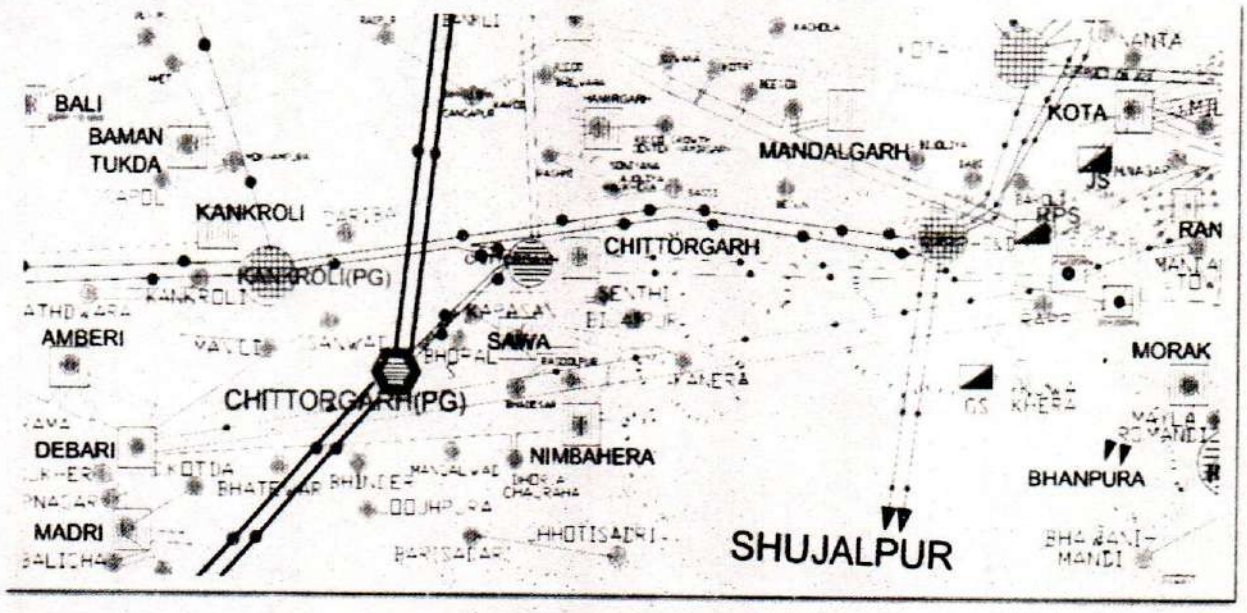
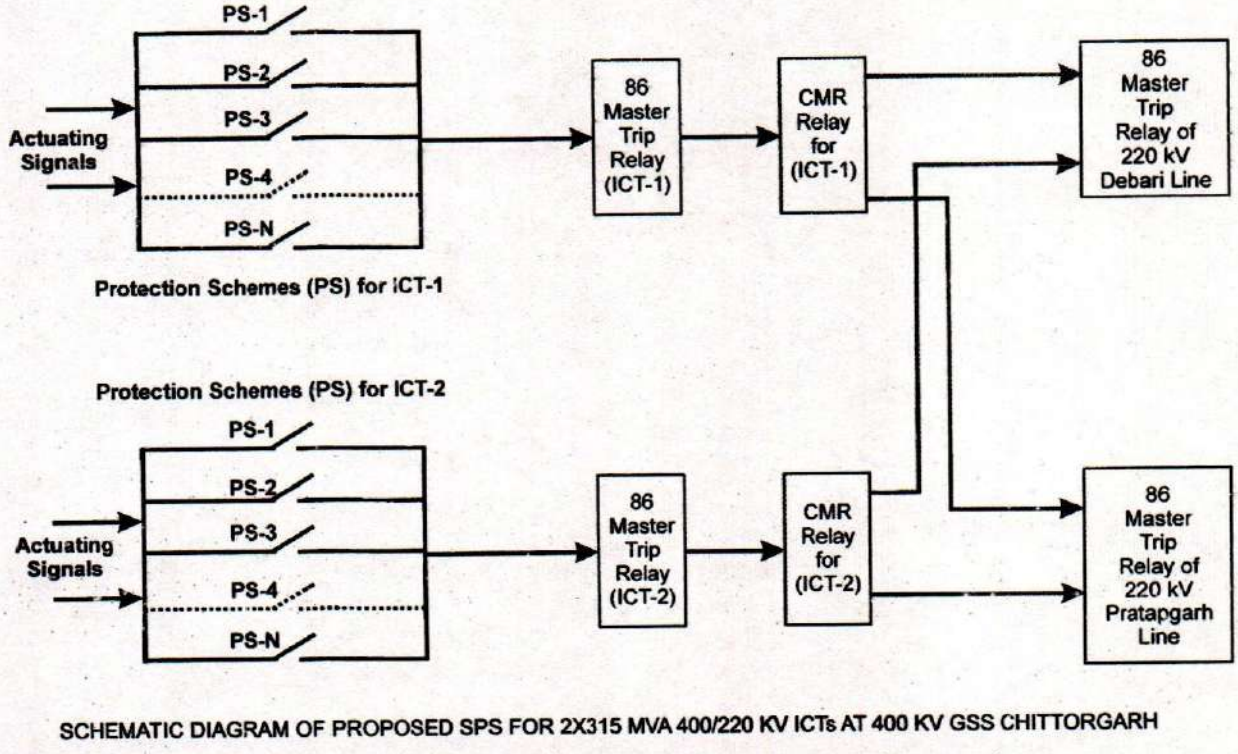


Fig. 5 Power Map of Chittorgarh Region

- After detailed analysis ofr above loading conditions & grid interconnection issues, following lines will be considered for tripping as soon as any one of the 2x315 MVA, 400/220 kV ICTs is tripped on fault/protection:-
  - 220 kV Chittorgarh-Debari line
  - 220 kV Chittorgarh -Pratapgarh line
- Tripping command for the 220 kV lines included in SPS are to be taken from the 86 relay installed on 220 kV side of both the 2x315 MVA, 400/220 kV ICTs which will be utilized to trip the above 220 kV lines when any one ICTs trip on fault/protection.
- Schematic diagram for the tripping of all lines included in SPS at 400 kV GSS Chittorgarh is shown below:-



SCHEMATIC DIAGRAM OF PROPOSED SPS FOR 2X315 MVA 400/220 KV ICTs AT 400 KV GSS CHITTORGARH

Fig. 6 Schematic Diagram of Proposed SPS for ICTs at 400 kV GSS Chittorgarh

TRANSMISSION ELEMENTS UNDER LONG OUTAGES AS ON 12.04.2022

S.No	Element Name	Type	Owner	Outage		Days	Reason / Remarks	Status updated during last OCC
1	400/220 kv 315 mva ict 1 at bhilwara(rs)	ICT	RRVPNL	12-05-2019	23:42	1065	oil leakage in transformer	
2	400/220 kV 315 MVA ICT 2 at Mundka(DV)	ICT	DTL	20-09-2019	00:19	935	Due to fire in ICT	
3	80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SJ)	BR	SJVNL	17-10-2019	12:58	907	Flashover/Fault in 80MVAR Bus Reactor cleared by Bus Bar Protection.	
4	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	ICT	UPPTCL	13-03-2020	02:46	760	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover.	TWC approved on 09.12.2021 for replacement with 500MVA new ICT . 30 Dec 2022
5	400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP)	ICT	UPPTCL	19-08-2020	08:12	601	ICT tripped on REF protection. Transformer caught fire and got damaged.	30 June 2022
6	400/220 kV 315 MVA ICT 2 at Bawana(DV)	ICT	DTL	30-03-2021	17:35	377	400kV side B-phase bushing blasted. Tripped on differential protection, REF protection. ICT catches fire and damaged.	
7	400 KV Kadarpur (GPTL) - Bus 1	BUS	GPTL	17-04-2021	13:18	359	E/S/D taken due to abnormal humming sound observed from 400KV B-phase BUS-1 CVT at Kadarpur.	
8	220 KV Sohawal(PG)-Gonda(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:00	243	Emergency shutdown of line taken, as tower no. 34 is affected by flood.	30 May 2022
9	220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:12	243	Emergency shutdown of line taken, as tower no. 34 is affected by flood.	30 May 2022
10	50 MVAR Non-Switchable LR on Agra-Unnao (UP) Ckt-1 @Agra(UP)	LR	UPPTCL	28-10-2021	22:27	165	R and Y phase bushing damaged at Agra(UP).	Bushing damaged , concerned written to OEM for inspection of reactor.
11	765/400 kV 1500 MVA ICT 2 at Gr.Noida_2(UPC)	ICT	UPPTCL	12-11-2021	14:22	150	PRV- 1 & 2 Trip, Differential protection and Buchholz Trip. inspected our 1500 MVA ICT-2 (R-Ph), During inspection it is found that the IV Bushing got damaged and oil flowed out from the bushing. During complete internal inspection by OEM M/s BHEL winding found faulty	30 Apr 2022. PRV- 1 & 2 Trip, Differential protection and Buchholz Trip. inspected our 1500 MVA ICT-2 (R-Ph), During inspection it is found that the IV Bushing got damaged and oil flowed out from the bushing. During complete internal inspection by OEM M/s BHEL winding found faulty
12	400/220 kV 315 MVA ICT 4 at Mundka(DV)	ICT	DTL	13-11-2021	19:15	149	Buchholz trip.	
13	220 KV AGRA(PG)-FEROZABAD(UP) (UP) CKT-1	Line	UPPTCL	27-11-2021	09:55	136	Jumpering work for making Lilo point of 220 kv Firozabad(400)-Agra(765) PG line at 220 kv Tundla	30 Apr 2022. Jumpering work for making Lilo point of 220 kv Firozabad(400)- Agra(765) PG line at 220 kv Tundla. FTC process completed but yet to be charged due to PLCC issue at Tundla end.
14	400KV Bus 1 at Vishnuprayag(JP)	BUS	JPVL	02-12-2021	14:42	130	Bus bar protection operated at Vishnuprayag.	30 Sep 2022
15	400/220 kV 240 MVA ICT 3 at Moradabad(UP)	ICT	UPPTCL	13-12-2021	22:38	119	Due to high DGA values, Hydrogen gas is above permissible limit.	30 Dec 2022. It has been informed that 315MVA ICT has been aproved
16	220/33 kV 125 MVA ICT 4 at Saurya Urja Solar(SU)	ICT	Saurya Urja	20-12-2021	20:15	112	ICT-4 tripped due to operation of of PRD, REF, Differential and Buchholz relay.	
17	408 MAIN BAY - 400 KV GORAKHPUR(PG)-GORAKHPUR(UP) (PG) CKT-1 GORAKHPUR (UP)	BAY	POWERGRID	10-01-2022	15:42	91	Tripped due to Pole-Discrepancy relay operation in bay no. 408 at Gorakhpur(UP) END	
18	400 KV Nathpa Jhakri(SJ)-Karcham Wangtoo(JSW) (HBPCL) Ckt-1	Line	JPL,HBPCL	23-01-2022	10:18	79	S/D taken as some strands of conductor are detached and needs urgent sleeving to avoid any tripping & generation loss. Due to CB mechanism failure at Karcham end, KWHEP is not be able to charge the line.	
19	50 MVAR BUS REACTOR NO 1 AT 400KV PANKI(UP)	BR	UPPTCL	29-01-2022	08:56	73	replacement of 50 MVAR Bus reactor by new 125 MVAR Bus Reactor.	
20	765 KV ANPARA_D-UNNAO (UP) CKT-1	Line	UPPCL	08-02-2022	10:06	63	Shifting of Line Reactor from Anpara-D to Obra-C S/S (OCC 190)	26 April 2022
21	220 KV Kishenpur(PG)-Mir Bazar(PDD) (PDD) Ckt-1	Line	PDD JK	19-02-2022	21:45	51	Tower no. 170 collapsed.	
22	408 TIE BAY - 400/11 KV 216 MVA GT 6 AT BAWANA CCGTB(DTL) (DTL) AND 400/11 KV 253 MVA GT 3 AT BAWANA CCGTB(DTL) AT 400 KV BAWANA CCGTB(DTL) (DTL)	BAY	DTL	02-03-2022	11:45	41	for breaker retrofitting work.	
23	400/220 KV 315 MVA ICT 1 AT BAMNOLI(DV)	ICT	DTL	03-03-2022	11:45	40	to shift the 315 MVA ICT-1 (Emco Make) installed at 400kV Bamnauli to 400kV Tikri Kalan (Mundka) S/stn .	
24	50 MVAR Bus Reactor No 1 at 400KV Bikaner(RS)	BR	RRVPNL	09-03-2022	11:19	34	During charging of reactor, CB tripped on Back up Impedence realy	
25	400 KV Parbati_3(NH)-Sainj(HP) (PKTCL) Ckt-1	Line	PKTCL	11-03-2022	03:21	32	Phase to earth fault R-N , Zone-1 from Parbati_3(NH). R-phase XLPE cable has been punctured between GIS and Pothead yard of Parbati-III PS.	
26	220/33 kV 125 MVA ICT 3 at Saurya Urja Solar(SU)	ICT	Saurya Urja	13-03-2022	18:37	29	Failure of Transformer Bucholz relay and Differential Operated	

27	400/21 kV 776 MVA GT 7 at Suratgarh SCTPS(RVUN)	ICT	RRVPNL	15-03-2022	01:32	28	Due to failure of R-phase bushing of GT-7A.	
28	FSC(40%) OF 400 KV KANPUR-BALLABHGARH (PG) CKT-3 AT BALLABHGARH(PG)	FSC	POWERGRID	25-03-2022	11:32	18	for Firewall installation work in SIEMENS FSC platform. (OCC 192)	
29	405 TIE BAY - 400/11 KV 216 MVA GT 5 AT BAWANA CCGTB(DTL) (DTL) AND 400 KV BAWANA CCGTB(DTL) - BUS 2 AT 400 KV BAWANA CCGTB(DTL) (DTL)	BAY	DTL	25-03-2022	11:53	18	for . breaker retrofitting work at CCGT Bawana (OCC 192)	
30	220 KV NEW TANDA (UP)-SOHAWAL(PG) (UP) CKT-2	Line	UPPTCL	27-03-2022	09:50	16	Lilo of lines at Ayodhya	
31	FSC of 400 kV Meerut- Bareilly – II at Bareilly						Due to low current	
32	FSC of 765 KV Koteshwar-Meerut (PG) Ckt-1 at Meerut(PG)						FSCs were to be Upgraded to 765kV after upgradation of lines. FTC process completed by Apr-2021, however, FSCs not yet taken into service. Expected revival status awaited from PG-NR1.	
33	FSC of 765 KV Koteshwar-Meerut (PG) Ckt-2 at Meerut(PG2							
34	FSC of 400 KV Gorakhpur(PG)-Lucknow(PG) (PL) Ckt-3 & 4 at Lucknow(PG)						Due to low current	
35	FSC of 400 KV Fatehpur-Mainpuri (PG) Ckt-1 at Mainpuri(PG)						Due to low current. Requested PG-NR3 for taking FSC into service but not yet charged. Revival status awaited.	
36	FSC of 400 KV Fatehpur-Mainpuri (PG) Ckt-2 at Mainpuri(PG)							
37	FSC of 400 kV Meerut- Bareilly – I at Bareilly						Due to low current	
38	FSC(40%) OF 400 KV KANPUR-BALLABHGARH (PG) CKT-3 AT BALLABHGARH(PG)						For Firewall installation work in SIEMENS FSC platform. (OCC 192)	16/04/2022.

GENERATING UNITS UNDER LONG OUTAGES AS ON 12.04.2022

S.No	Element Name		Owner	Outage		Days	Reason / Remarks	Status updated during last OCC
1	600 MW RGTPP(Khedar) - UNIT 2		HVPNL	02-03-2021	00:00	406	Capital Overhauling/turbine replacement	01.09.2022
2	66 MW Pong HPS - UNIT 4		BBMB	28-07-2021	15:00	257	Failure of compress air system	
3	250 MW Chhabra TPS - UNIT 4		RRVPNL	09-09-2021	00:47	215	Due to ESP structure damage	
4	150 MW Baglihar (IPP) HPS - UNIT 5		PDD JK	15-10-2021	09:00	179	Hydrological Problems	
5	100 MW Koteshwar HPS - UNIT 1		THDC	04-11-2021	22:58	158	due to fault in GT	
6	108 MW Bhakra HPS - UNIT 1		BBMB	15-12-2021	12:05	117	Renovation Modernization and upgradation of capacity to 126MW	
7	200 MW Obra TPS - UNIT 13		UPPTCL	08-01-2022	06:36	94	High bearing vibration in turbine	
8	660 MW Meja TPS - UNIT 2		UPPTCL,NTPC	07-02-2022	18:59	63	Boiler tube leakage (Large scale Inspection under process at Meja.)	15.04.2022
9	34 MW Delhi Gas Turbines - UNIT 9		DTL	12-02-2022	20:00	58	STG Governor oil leakage	
10	30 MW Delhi Gas Turbines - UNIT 5		DTL	12-02-2022	21:04	58	due to tripping of associated STG at 20:00 hrs	
11	660 MW Jhajjar(CLP) - UNIT 2		HVPNL	01-03-2022	00:00	42	Overhauling	19.04.2022
12	66 MW Pong HPS - UNIT 5		BBMB	04-03-2022	20:00	38	Maintenance of stator during low irrigation demand	
13	210 MW Guru Gobind Singh TPS (Ropar) - UNIT 5		PSPCL	11-03-2022	00:00	32	Annual Shutdown	
14	660 MW Suratgarh SCTPS - UNIT 7		RRVPNL	15-03-2022	01:32	28	Loss of all fuel.FAILURE OF R PHASE BUSHING OF GT-7A	26.04.2022

Sr No	Element Name	Outage Date	Outage Time	Reason
1	400 KV Agra-Unnao (UP) Ckt-1	03-Mar-22	19:55	B-N fault, Zone-1, Dist. 101.1km, Fault current 1.38kA from Unnao end. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
		22-Mar-22	03:20	B-N fault. As per PMU, B-N fault occured, no auto-reclosing observed.
		27-Mar-22	13:25	Y-N fault. As per PMU, Y-N fault and unsuccessful auto-reclosing observed.
		28-Mar-22	02:39	R-N Fault , Zone 1, Fault current 2.58kA, Distance 168.5Km from Unnao end. As per PMU, R-N fault and unsuccessful auto-reclosing observed.
2	400 KV Bareilly-Unnao (UP) Ckt-1	02-Mar-22	05:56	R-N fault, Zone-1, Dist. 122.7km, Fault current 3.85kA from Unnao(UP). As per PMU, R-N fault occured, no auto-reclosing observed.
		18-Mar-22	02:33	Tripped due to mal-operation of O/V Protection at Bareilly end. As per PMU, No fault observed and voltage was in permissibale range.
		18-Mar-22	04:54	Tripped due to mal-operation of O/V Protection at Bareilly. Voltage at Bareilly end: 415 kV Unnao end: 409 kV. As per PMU, No fault observed and voltage was in permissibale range.
		19-Mar-22	03:46	O/V Protection operated at Bareilly end. As per PMU, No fault observed and voltage was in permissibale range.
3	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	05-Mar-22	20:40	Y-N fault, Dist. 146.9km, Fault current 0.77kA from Debari ; Dist. 54.15km, Fault current 2.972kA from RAPP-A. As per PMU, Y-N fault occured, no auto-reclosing observed.
		06-Mar-22	17:18	Bus bar protection operated. As per PMU, R-N fault occured, no auto-reclosing observed.
		11-Mar-22	14:15	B-N fault, Zone-1, Dist. 139.3km from Debari end ; Zone-1, Dist. 94.39km, Fault current 1.73kA from RAPP-A. As per PMU, No fault observed.
		30-Mar-22	12:24	Y-B fault, Dist. 170.8km, Fault current Iy 0.63kA, Ib 0.62kA from Debari(RS); Dist. 33.65km, Fault current Iy 8.421kA, Ib 7.584kA from RAPP_A. As per PMU, Y-B fault is observed.
4	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2	01-Mar-22	02:37	R-N fault, Dist. 26.99km, Zone-1, Fault current 3.951kA from RAPP-A. As per PMU, R-N fault occured, no auto-reclosing observed.
		06-Mar-22	06:11	B-N fault, Zone-1, Dist. 30.34km, Fault current 3.5kA from RAPP-A; Dist. 5.1km, Fault current 4.62kA from Sakatpura. As per PMU, B-N fault occured, no auto-reclosing observed.
		06-Mar-22	17:18	Bus bar protection operated. As per PMU, R-N fault occured, no auto-reclosing observed.
		07-Mar-22	03:19	R-N fault, Zone-1, Dist. 13.21km, Fault current 5.484kA from Sakatpura; Zone-1, Dist. 23.82km, Fault current 4.212kA from RAPP-A. As per PMU, R-N fault occured, no auto-reclosing observed.
		18-Mar-22	12:32	B-N fault, Dist. 107.6km, Fault current 1.13kA from Sakatpura(RS). As per PMU, B-N fault occurred and delayed clearance of 480ms with no auto-reclosing observed.

Annexure-B.VI

S.No.	Region	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Generation Loss(MW)	Load Loss(MW)	Category as per CEA Grid Standards	Energy Unserved (in MU)	Preliminary Report receipt status			DR/EL receipt status			Detailed Report receipt status		Fault Clearance time (in ms)
					Date	Time						within 24Hours	after 24Hours	Not Received	within 24Hours	after 24Hours	Not Received	Received	Not Received	
1	NR	1) 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1 2) 220 KV RAPS_B(NP)-RAPS_A(NP) (RS) Ckt-1 3) 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2 4) 200 MW RAPS-A - UNIT 2	RAJASTHAN	NPCIL, RRVPNL	6-Mar-22	17:18	As reported, 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1, 220 KV RAPS_B(NP)-RAPS_A(NP) (RS) Ckt-1, 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2 and 200 MW RAPS-A - UNIT 2 all tripped on bus bar differential protection operation at RAPS_A end. As per PMU, R-N phase to earth fault is observed. As per SCADA SOE, first 220 KV RAPS_B(NP)-RAPS_A(NP) (RS) Ckt-1 tripped from RAPS_B end followed by tripping of line from RAPS_A end and 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1, 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2 from RAPS_A end. Further after approx. 20sec, 200 MW RAPS-A - UNIT 2 also tripped. In antecedent condition, 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1, 220 KV RAPS_B(NP)-RAPS_A(NP) (RS) Ckt-1, 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2 and 200 MW RAPS-A - UNIT 2 were carrying 109MW, 14MW, 5MW & 195MW respectively.	195	0	GD-1	0		Y(Raj) Y(NPCIL)				Y(Raj) Y(NPCIL)	Y(NPCIL)	Y(Raj)	120
2	NR	1) 800 KV HVDC Kurukshetra(PG) Pole-4 2) 800 KV HVDC Kurukshetra(PG) Pole-03	HARYANA	POWERGRID	9-Mar-22	21:18	As reported, 800 KV HVDC Kurukshetra(PG) Pole-3 & Pole-4 tripped from Champa end due to failure of MCCB of 220V DC supply system of Bipole-2. As per PMU, no fault is observed. In antecedent condition, 800 KV HVDC Kurukshetra(PG) Bipole was carrying approx. 350MW.	0	0	GI-2	0			Y(PG)			Y(PG)		Y(PG)	NA
3	NR	1) 400 KV Singrauli(NT)-Anpara(UP) (PG) Ckt-1 2) 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1 3) 500 MW Anpara-D TPS - UNIT 1	UTTAR PRADESH	POWERGRID, UPPTCL	11-Mar-22	13:55	As reported, 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1 tripped on B-N phase to earth fault. Line was successfully autoreclosed from Anpara_C end but tripped from Unnao end without A/R operaton. At the same time, 400 KV Singrauli(NT)-Anpara(UP) (PG) Ckt-1 tripped on over current protection operation at Anpara end and 500 MW Anpara-D TPS - UNIT 1 tripped on SPS operation. As per PMU plot of voltage at Anpara(UP), B-N phase to earth fault is observed and from PMU plot of MW of 400kV Anpara-Singrauli ckt it is observed that MW loading of line increased from 405MW to 1111MW after tripping of 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1. Due to this, 400 KV Singrauli(NT)-Anpara(UP) (PG) Ckt-1 tripped on over current protection operation at Anpara(UP) end. Further after 3 sec (as per SCADA SOE), 500 MW Anpara-D TPS - UNIT 1 tripped on SPS operation. Power reduction of approx. 250MW at each unit of Anpara C and approx. 90MW at Anpara D is also observed on SPS operation. In antecedent condition, 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1 and 400 KV Singrauli(NT)-Anpara(UP) (PG) Ckt-1 were carrying 1390MW & 405MW respectively. As per information received from CPCC-3 on telephonic communication, over current protection in 400 KV Singrauli(NT)-Anpara(UP) (PG) Ckt-1 has been disabled.	480	0	GD-1	0	Y(UP)	Y(NTPC)		Y(UP) Y(NTPC)			Y(UP) Y(NTPC)		80
4	NR	1) 765 KV Bikaner(PG)-Khetri (PKTSL) (BKTL) Ckt-2 2) 765 KV Khetri (PKTSL)-Jhatikara(PG) (PKTSL) Ckt-2	RAJASTHAN	PKTSL	15-Mar-22	14:15	As reported, 765 KV Khetri (PKTSL)-Jhatikara(PG) (PKTSL) Ckt-2 tripped on R-N phase to earth fault, fault distance was 145km from Jhatikara end. At the same time, 765 KV Bikaner(PG)-Khetri (PKTSL) (BKTL) Ckt-2 also tripped from Bikaner end only in Z-2 distance protection operation, fault distance was 272km from Bikaner end. As per PMU, successful A/R operation on R-N fault followed by 3-ph tripping on subsequent R-N fault is observed at Khetri end. As per SCADA, drop in solar generation of approx. 500MW is observed during the event. In antecedent condition, 765 KV Khetri (PKTSL)-Jhatikara(PG) (PKTSL) Ckt-2 and 765 KV Bikaner(PG)-Khetri (PKTSL) (BKTL) Ckt-2 were carrying 485MW & 1346MW respectively.	500	0	GD-1	0.17		Y(PG) Y(PKTSL)			Y(PKTSL)	Y(PG)		Y(PG) Y(PKTSL)	80
5	NR	1) 400 KV Bamnoli(DV)-Jhatikara(PG) (DTL) Ckt-2 2) 400 KV Bamnoli(DV)-Dwarka (PG) (PG) Ckt-1	NEW DELHI	DTL, POWERGRID	15-Mar-22	17:28	As reported, 400 KV Bamnoli(DV)-Jhatikara(PG) (DTL) Ckt-2 tripped from Bamnoli end only on DT received from Jhatikara end. At the same time, 400 KV Bamnoli(DV)-Dwarka (PG) (PG) Ckt-1 also tripped from Dwarka end only on DT received from Bamnoli end. As per the information received, tripping occurred due to PLCC maloperation. As per PMU, no fault is observed. In antecedent condition, 400 KV Bamnoli(DV)-Jhatikara(PG) (DTL) Ckt-2 & 400 KV Bamnoli(DV)-Dwarka (PG) (PG) Ckt-1 were carrying 444MW & 38MW respectively.	0	0	GI-2	0	Y(PG)	Y(DTL)				Y(DTL)		Y(DTL)	NA
6	NR	1) 400 KV Dulhasti(NH)-Kishenpur(PG) (PG) Ckt-2 2) 400KV Bus 1 at Kishenpur(PG) 3) 400/220 kV 315 MVA ICT 2 at Kishenpur(PG) 4) 400/220 kV 315 MVA ICT 1 at Kishenpur(PG) 5) 400 KV Kishenpur-NewWanpoh (PG) Ckt-1 6) 400 KV Dulhasti(NH)-Kishenpur(PG) (PG) Ckt-1	J & K	POWERGRID	15-Mar-22	18:19	As reported, during charging of 400 KV Dulhasti(NH)-Kishenpur(PG) (PG) Ckt-2, R-Y phase to phase fault followed by B-N fault occurred at Kishenpur end. On this fault, LBB of main CB of 400 KV Dulhasti(NH)-Kishenpur(PG) (PG) Ckt-2 (Connected to bus-1) operated which resulted into tripping of all Main CBs connected to Bus-1. At the same time, 400/220 kV 315 MVA ICT 1 & ICT 2 at Kishenpur(PG) (connected to Bus-2) both tripped on back impedance protection operation. Due to tripping of ICTs, 400 KV Kishenpur-NewWanpoh (PG) Ckt-1 & 400 KV Dulhasti(NH)-Kishenpur(PG) (PG) Ckt-1 also tripped as they were connected to same dia with ICT-1 & ICT-2 respectively. As per PMU, R-Y phase to phase fault followed by B-N phase to earth fault with delayed clearance in 320ms is observed. As per SCADA, generation loss of approx. 110MW is observed at Dulhasti(NH), generation loss occurred due to loss of evacuating path. In antecedent condition, 400/220 kV 315 MVA ICT 1 & ICT 2 at Kishenpur(PG), 400 KV Kishenpur-NewWanpoh (PG) Ckt-1 and 400 KV Dulhasti(NH)-Kishenpur(PG) (PG) Ckt-1 were carrying 24MW, 24MW, 47MW & 108MW respectively.	110	0	GD-1	0.05		Y(PG)	Y(N+PC)		Y(PG)			Y(PG)	320
7	NR	1) 220 KV Jessore(HP)-Pong(BB) (PG) Ckt-1 2) 220 KV Jalandhar-Pong (BB) Ckt-2 3) 220 KV Jalandhar-Pong (BB) Ckt-1 4) 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1 5) 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-2 6) 220 KV Bairasiul(NH)-Pong(BB) (PG) Ckt-1 7) 220KV Bus 1 at Pong(BB)	HIMACHAL PRADESH	BBMB, POWERGRID,	17-Mar-22	08:40	As reported, Y-phase wave trap of 220 KV Jalandhar-Pong (BB) Ckt-1 at pong end got blasted. At the same time, 220 KV Bairasiul(NH)-Pong(BB) (PG) Ckt-1, 220 KV Jessore(HP)-Pong(BB) (PG) Ckt-1, 220 KV Jalandhar-Pong (BB) Ckt-1 & Ckt-2, 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1 & Ckt-2 and 220KV Bus-1 at Pong(BBMB) all got tripped. As reported, 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1 & Ckt-2 and 220 KV Jessore(HP)-Pong(BB) (PG) Ckt-1 tripped from Dasuya and Jessore end in Z-3 on RYB fault. At the same time, 66MW Unit-1, 2, 3 & 6 at Pong(BBMB) also tripped. As per PMU, R-Y-B three phase fault with delayed clearance in 1080ms is observed, As per SCADA, generation loss of approx. 245MW is observed at Pong HEP. In antecedent condition, 220 KV Bairasiul(NH)-Pong(BB) (PG) Ckt-1, 220 KV Jessore(HP)-Pong(BB) (PG) Ckt-1, 220 KV Jalandhar-Pong (BB) Ckt-1 & Ckt-2, 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1 & Ckt-2 were carrying 45MW, 3MW, 58MW, 58MW, 74MW & 74MW respectively.	245	0	GD-1	0	Y(HP) Y(Pun)	Y(BBMB)			Y(BBMB)	Y(HP) Y(Pun)		Y(BBMB)	1080
8	NR	1) 220 KV Phozal(HP)-Nallagarh(PG) (ADHPL) Ckt-1 2) 220 KV AD hydro(AD)-Nallagarh(PG) (ADHPL) Ckt-1	HIMACHAL PRADESH	ADHPL	19-Mar-22	21:08	As reported, 220 KV AD hydro(AD)-Nallagarh(PG) (ADHPL) Ckt-1 and 220 KV Phozal(HP)-Nallagarh(PG) (ADHPL) Ckt-1 both tripped on R-N phase to earth fault as both the lines were on same tower, fault distance was 117km and 45km from Nallagarh and AD Hydro end respectively. During patrolling it was found that one tree from outside the ROW has broken due to heavy storm (on 19.03.2022 night) in between tower span no. 174- 175 and damaged the middle and bottom cross-arm of tower no. 175. With the tripping of above line, 96MW Unit-1 at AD Hydro HEP also tripped due to loss of evacuation path. As per PMU, multiple R-N fault is observed. As per SCADA, change in generation of approx. 98MW is observed at AD Hydro HEP. In antecedent condition, 220 KV AD hydro(AD)-Nallagarh(PG) (ADHPL) Ckt-1 and 220 KV Phozal(HP)-Nallagarh(PG) (ADHPL) Ckt-1 were carrying 95MW & 27MW respectively.	98	0	GD-1	0.21	Y(HP) Y(Ad Hydro)	Y(PG)		Y(HP) Y(Ad Hydro) Y(PG)			Y(HP) Y(Ad Hydro) Y(PG)		120

S.No.	Region	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Generation Loss(MW)	Load Loss(MW)	Category as per CEA Grid Standards	Energy Unserved (in MU)	Preliminary Report receipt status			DR/EL receipt status			Detailed Report receipt status		Fault Clearance time (in ms)
					Date	Time						within 24Hours	after 24Hours	Not Received	within 24Hours	after 24Hours	Not Received	Received	Not Received	
9	NR	1) 220 KV Samaypur(BB)-Palli(HV) (HVPNL) Ckt-2 2) 220 KV Samaypur(BB)-Palli(HV) (HVPNL) Ckt-1	HARYANA	HVPNL	20-Mar-22	17:01	As reported, CT of 220kV Gurgaon Sec 52-Gurgaon Sec 56 ckt-1 at Gurgaon Sec 52 end got damaged, resulted into three phase fault. On this fault, 220kV Gurgaon Sec 52-Gurgaon Sec 56 ckt-1 tripped from Gurgaon Sec52 end instantaneously but tripped from Gurgaon Sec56 end with delay of approx. 400ms. As reported, PLCC at both ends are not operational. During tripping of 220kV Gurgaon Sec 52-Gurgaon Sec 56 ckt-1 from Gurgaon Sec 56 end, B-ph CB got stuck which further led to LBB protection operation at Gurgaon Sec56 end. Due to issue in Bus bar relay at Gurgaon Sec 56 end, 220kV Gurgaon Sec 72-Gurgaon Sec 56 ckt-1 & Ckt-2 and 220kV Palli-Gurgaon Sec 56 ckt-1 & Ckt-2 tripped from remote end. At the same time, 220kV Palli-Samaypur ckt-1 & Ckt-2 tripped from Samaypur end and other 220kV feeders from 220kV Palli to Badshahpur, Palla and Gurgaon Sec 52 also tripped. As per PMU, R-Y-B three phase fault with delayed clearance in 480ms is observed. As per SCADA, change in load of approx. 550MW is observed in Haryana control area.	0	550	GD-1	0.55	Y(BBMB)	Y(Har)				Y(BBMB) Y(Har)	Y(BBMB) Y(Har)		480
10	NR	1) 220 KV Amargarh(NRSS XXIX)-Ziankote(JK) (PDD JK) Ckt-2 2) 220 KV Amargarh(NRSS XXIX)-Ziankote(JK) (PDD JK) Ckt-1	J & K ; LADAKH	PDD JK	23-Mar-22	20:11	As reported at 20:11 Hrs, 220kV Ziankote-Alusteng ckt-2 tripped on Y-B phase to phase fault during inclement weather condition, fault current was approx. 10kA. At the same time, 220kV Amargarh-Ziankote ckt-1&2 also tripped on same fault, fault distance and fault current recorded at Amargarh end was 27km & 2.7kA respectively. With the tripping of aforementioned lines, Ladakh region got isolated from J&K valley region. Further after approx. 30sec, 220kV Khalsti-Phyang(Leh) ckt tripped followed by tripping of 15 MW Unit-1&2 at Nimmo Bazgo and 11 MW Unit-2 at Chutak due to loss of evacuation path, which resulted into load loss of whole Ladakh region. As per PMU, Y-B phase to phase fault is observed. As per SCADA, change in demand of approx. 225MW in J&K valley region and approx. 35MW in Ladakh region is observed. As confirmed by NHPC, 41 MW generation loss occurred due to tripping of 15 MW Unit-1&2 at Nimmo Bazgo and 11 MW Unit-2 at Chutak. In antecedent condition, 220kV Amargarh-Ziankote ckt-1&2 were carrying 176MW each.	41	260	GD-1	0.25		Y(INDIGRID)	Y(JK)		Y(INDIGRID)	Y(JK)	Y(INDIGRID)	Y(JK)	120
11	NR	1) 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1	RAJASTHAN		27-Mar-22	09:26	As reported, 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1 tripped from AHEJL end on over current protection operation. As per PMU, no fault is observed. As per SCADA, solar generation loss of approx. 290MW is observed. In antecedent condition, 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1 was carrying approx. 294MW.	290	0	GD-1	0.21		Y(PG)	Y(ADANI)			Y(ADANI)		Y(ADANI)	NA
12	NR	1) 400 KV Suratgarh SCTPS(RVUN)-Bikaner(RS) (RS) Ckt-2 2) 400 KV Suratgarh SCTPS(RVUN)-Bikaner(RS) (RS) Ckt-1 3) 400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-1 4) 660 MW Suratgarh SCTPS - UNIT 8	RAJASTHAN	RRVPNL	30-Mar-22	10:12	As reported, 400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-1 tripped on R-N phase to earth fault, fault distance was 137.5km and fault current was 2.61kA from Ratangarh end. At the same time, 400 KV Suratgarh SCTPS(RVUN)-Bikaner(RS) (RS) Ckt-1 & Ckt-2 both tripped on mal operation of Main-2 distance protection at Bikaner end and 660 MW Suratgarh SCTPS - UNIT 8 tripped due to tripping of turbine. As per PMU, R-N fault is observed. As per SCADA, change in generation of approx. 440MW is observed at Suratgarh SCTPS. In antecedent condition, 400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-1, 400 KV Suratgarh SCTPS(RVUN)-Bikaner(RS) (RS) Ckt-1 & Ckt-2 all were carrying 543MW, 180MW & 180MW respectively.	440	0	GD-1	0	Y(Raj)			Y(Raj)			Y(Raj)		80
13	NR	1) 220 KV Baghpat(PG)-Barot(UP) (UP) Ckt-2 2) 220 KV Baghpat(PG)-Barot(UP) (UP) Ckt-1	UTTAR PRADESH	UPPTCL	30-Mar-22	21:55	As reported, 220 KV Bagpat(PG)-Barot(UP) (UP) Ckt-1 & Ckt-2, 220kV Baraut-Muradnagar_New ckt, 220/132kV 200MVA ICT-1 at Baraut(UP) & 220/132kV 160MVA ICT-2 at Baraut(UP) all tripped due to bus bar protection operation at 220kV Baraut(UP). Bus bar protection operated on Y-Ph bus fault which occurred due to Y-phase CT blast of 220kV Barot-Muradnagar ckt at Barot(UP) end. As per PMU, Y-N phase to earth fault is observed. As per SCADA, change in load of approx. 60MW is observed in UP control area. In antecedent condition, 220 KV Baghpat(PG)-Barot(UP) (UP) Ckt-1 & Ckt-2, 220kV Baraut-Muradnagar_New ckt were carrying 27MW, 27MW & 87MW respectively.	0	60	GD-1	0.07		Y(PG) Y(UP)		Y(PG)		Y(UP)		Y(UP)	80
14	NR	1) 400 KV Obra_B-Rewa Road (UP) Ckt-1 2) 400 KV Rewa Road-Panki (UP) Ckt-1	UTTAR PRADESH	UPPTCL	31-Mar-22	14:22	As reported, 400 KV Obra_B-Rewa Road (UP) Ckt-1 tripped on R-N phase to earth fault. At the same time, 400 KV Rewa Road-Panki (UP) Ckt-1 also tripped from Rewa Road end only on DT received from Panki end due to PLCC mal-operation at Panki(UP). As per PMU, R-N phase to earth fault and no auto-reclosing observed. In antecedent condition, 400 KV Obra_B-Rewa Road (UP) Ckt-1 & 400 KV Rewa Road-Panki (UP) Ckt-1 were carrying 243MW & 219MW respectively.	0	0	GI-2	0	Y(UP)			Y(UP)			Y(UP)		80
15	NR	1) 400KV Bus 2 at Bamnoli(DV), 400 KV Bamnoli(DV)-Tughlakabad(PG) (DTL) Ckt-2 2) 400/220 kV 500 MVA ICT 3 at Bamnoli(DV)	NEW DELHI	DTL	31-Mar-22	18:41	As reported, 400 KV Bamnoli(DV)-Tughlakabad(PG) (DTL) Ckt-2 tripped on B-N phase to earth fault. At the samme time, bus bar protection of 400kV Bus-2 at Bamnoli(DV) also operated which led to tripping of all CB connected to 400kV Bus-2. Further after 300ms, 400/220 kV 500 MVA ICT 3 at Bamnoli(DV) also tripped on over current protection operation. As per PMU, R-N phase to earth fault followed by B-N phase to earth fault is observed. In antecedent condition, 400 KV Bamnoli(DV)-Tughlakabad(PG) (DTL) Ckt-2 & 400/220 kV 500 MVA ICT 3 at Bamnoli(DV) were carrying 36MW & 126MW respectively.	0	0	GI-2	0	Y(DTL)		Y(DTL)	Y(DTL)		Y(DTL)	Y(DTL)		80

Northern Regional inter regional lines tripping for March-22

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	Restoration		# Fault Clearance Time (>100 ms for 400 kV and 160 ms for 220 kV)	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs (YES/NO)	Other Protection Issues and Non Compliance (inference from PMU, utility details)	Suggestive Remedial Measures	Remarks
			Date	Time				Date	Time						
1	800 KV HVDC Kurukshetra(PG) Pole-3	POWERGRID	9-Mar-22	21:18	Nil	Due to MCCB failure in 220V DC Supply system related to Bipole-2 system.	GI-2	9-Mar-22	23:28	NA	NO	NO		Details of the tripping yet to be received.	From PMU, No AC system fault observed.
2	800 KV HVDC Kurukshetra(PG) Pole-4	POWERGRID	9-Mar-22	21:18	Nil	Due to MCCB failure in 220V DC Supply system related to Bipole-2 system.	GI-2	9-Mar-22	23:29	NA	NO	NO		Details of the tripping yet to be received.	From PMU, No AC system fault observed.

 # Fault Clearance time has been computed using PMU Data from nearest node available and/or DR provided by respective utilities (*Annexure-* ***II)***

****Yes, if written Preliminary report furnished by constituent(s)***

R-Y-B phase sequencing (Red, Yellow, Blue) is used in the list content.All information is as per Northern Region unless specified.

^^ tripping seems to be in order as per PMU data, reported information. However, further details may be awaited.

Reporting of Violation of Regulation for various issues for above tripping

1	Fault Clearance time(>100ms for 400kV and >160ms for 220kV)	1. CEA Grid Standard-3.e 2. CEA Transmission Planning Criteria
2	DR/EL Not provided in 24hrs	1. IEGC 5.2(r) 2. CEA Grid Standard 15.3
3	FIR Not Furnished	1. IEGC 5.9.6.a 2. CEA Grid Standard 12.2 (Applicable for SLDC, ALDC only)
4	Protection System Mal/Non Operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.A 2. CEA (Technical Standards for connectivity to the Grid) Regulation, 2007: Schedule Part 1. (6.1, 6.2, 6.3)
5	A/R non operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.C 2. CEA Technical Planning Criteria

S. No.	Utility	1st Mar 2022 - 31st Mar 2022											
		Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)
			Value	%	Value		%	Value		%	Value		%
1	AD HYDRO	2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
2	AHEJ3L	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
3	AHEJ4L	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
4	ANTA-NT	3	3	**100**	1	0	**33**	1	0	**33**	3	0	**100**
5	APFOL	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
6	AREPRL	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
7	AVAADA RJHN	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
8	BAIRASUIL-NH	1	1	**100**	0	0	**0**	0	0	**0**	1	0	**100**
9	BBMB	42	3	**7**	6	14	**21**	5	22	**25**	3	8	**9**
10	CLEANSOLAR_JODHPUR	3	2	**67**	2	1	**100**	2	1	**100**	2	1	**100**
11	CPCC1	41	14	**34**	18	6	**51**	18	9	**56**	16	4	**43**
12	CPCC2	24	3	**13**	5	3	**24**	3	4	**15**	12	0	**50**
13	CPCC3	21	2	**10**	3	1	**15**	2	1	**10**	2	1	**10**
14	DADRIGAS-NT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
15	DADRI-NT	4	0	**0**	0	2	**0**	0	2	**0**	0	2	**0**
16	DULHASTI-NH	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
17	FARIDABAD-NT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
18	KARCHAM	2	0	**0**	0	1	**0**	0	1	**0**	2	0	**100**
19	KOLDAM-NT	1	0	**0**	0	0	**0**	0	0	**0**	1	0	**100**
20	NJPC	1	0	**0**	0	0	**0**	0	0	**0**	1	0	**100**
21	PARBATI-III-NH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
22	PARBATI-II-NH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
23	PKTSL	2	1	**50**	1	0	**50**	1	0	**50**	1	0	**50**
24	RAILWAYS	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
25	RAPPA	13	12	**92**	12	0	**92**	13	0	**100**	12	0	**92**
26	RAPPB	5	0	**0**	1	0	**20**	1	0	**20**	1	0	**20**
27	RAPPC	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
28	SALAL-NH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
29	SBSRPC-11	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
30	SINGOLI	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
31	SINGRAULI-NT	2	0	**0**	1	0	**50**	1	0	**50**	1	0	**50**
32	SLDC-DV	18	0	**0**	8	3	**53**	8	6	**67**	10	0	**56**
33	SLDC-HP	7	0	**0**	0	5	**0**	1	3	**25**	0	0	**0**
34	SLDC-HR	4	0	**0**	2	0	**50**	2	0	**50**	0	0	**0**
35	SLDC-JK	8	0	**0**	8	0	**100**	8	0	**100**	8	0	**100**
36	SLDC-PS	13	2	**15**	8	2	**73**	8	2	**73**	12	0	**92**
37	SLDC-RS	54	0	**0**	14	0	**26**	14	0	**26**	18	0	**33**
38	SLDC-UK	12	4	**33**	4	2	**40**	5	7	**100**	4	1	**36**
39	SLDC-UP	93	12	**13**	20	12	**25**	20	14	**25**	16	1	**17**
40	INDIGRID	5	0	**0**	0	0	**0**	0	0	**0**	0	1	**0**
41	TANAKPUR-NH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
42	TANDA-NT	3	2	**67**	2	1	**100**	2	1	**100**	2	1	**100**
43	UNCHAHAR-NT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
44	URI-I-NH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**

S. No.	Name of the Generatng Station (Capacity in MW)	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/NRPC (Yes/ No)	Remarks (if any)	Tentative schedule for PSS tuning / re-tuning in FY 2021-22
1	**THDC**					
	TEHRI HPS(4 * 250)	07/01/2019 to 10/01/2019	07/01/2019 to 10/01/2019	Yes	(Report shared vide email dt.19.01.2019)	
	KOTESHWAR HPS(4 * 100)	17/03/2019 to 19/03/2019	17/03/2019 to 19/03/2019	Yes	(Report shared vide email dt.11.02.2021)	
2	**SJVNL**					
	NATHPA-JHAKRI HPS(Unit1 #250)	10.03.2020	-	No	Excitation system upgraded in 2020	
	NATHPA-JHAKRI HPS(Unit2 #250)	14.03.2013	-	No	The existing excitation system is very old and obsoleted forwhich support for PSS tuning is not available from OEM (Mls Voith Hydro), although NJHPS, SJVN has placed work order on 08/12/201 5. Further being the critical component, it is not possible"io get the PSS tuning done from any other vender except OEM (Mls Voith Hydro) being the system and software specific job. Therefore, prpposal for upgradation of the excitation system of this unit is under process and PSS tuning shall be carried out during upgradation of excitation system.	3rd Quarter
	NATHPA-JHAKRI HPS(Unit3 #250)	03.03.2020	-	No	Excitation system upgraded in 2020	
	NATHPA-JHAKRI HPS(Unit4 #250)	14.03.2013	-	NO	The existing excitation system is very old and obsoleted forwhich support for PSS tuning is not available from OEM (Mls Voith Hydro), although NJHPS, SJVN has placed work order on 08/12/201 5. Further being the critical component, it is not possible"io get the PSS tuning done from any other vender except OEM (Mls Voith Hydro) being the system and software specific job. Therefore, prpposal for upgradation of the excitation system of this unit is under process and PSS tuning shall be carried out during upgradation of excitation system.	3rd Quarter
	NATHPA-JHAKRI HPS(Unit5 #250)	14.05.2016	14.05.2016	NO	Excitation system upgraded in 2013	3rd Quarter
	NATHPA-JHAKRI HPS(Unit6 #250)	14.05.2017	14.05.2017	NO	Excitation system upgraded in 2013	3rd Quarter
	RAMPUR HEP(6 * 68.67)	29.11.2014	27.10.2020,10.02.201 21	YES	PSS tuning was done at the time of commissioning of Excitation System by OEM (M/s BHEL). Since then response of PSS is checked regularly and found satisfactory.	
3	**HVPNL**					
	PANIPAT TPS(unit1# 250)	29.03.2016	29.03.2016	YES	--	3rd Quarter
	PANIPAT TPS(unit2# 250)	15.01.2018	15.01.2018	YES	--	3rd Quarter
	DCRTPP (YAMUNA NAGAR)(unit1#300)	19-12-2018	19-12-2018	YES	(Report attached)	3rd Quarter
	DCRTPP (YAMUNA NAGAR)(unit1#300)	Will be carried out shortly				
	RGTPP(KHEDAR) (2*600)	5th to 6th July 2013	5th to 6th July 2013	Report attached. Previous record being looked into	No MW capacity addition after 2013 at RGTPP Khedar. No new line addition in vicinity of station	
	JHAJJAR(CLP) (2*660)	20-05-2017	20-05-2017	YES	--	3rd Quarter
4	**NTPC**					
	Rihand (Unit1#500)	03-03-2017	03-03-2017	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit2#500)	02-07-2016	02-07-2016	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit3#500)	15-08-2015	15-08-2015	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter

	Rihand (Unit4#500)	25-05-2017	25-05-2017	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit4#500)	11-12-2014	11-12-2014	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit5#500)	11-12-2014	11-12-2014	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	SINGRAULI STPS(Unit1#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit2#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit3#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit4#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit5#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit6#500)	02.05.2018	02.05.2018	NO	--	3rd Quarter
	SINGRAULI STPS(Unit7#500)	15.07.2018	15.07.2018	NO	--	3rd Quarter
	UNCHAHAR I(2 * 210)	29-03-2016	29-03-2016	YES	--	3rd Quarter
	UNCHAHAR II TPS(unit1# 210)	13-07-2019	13-07-2019	YES	--	
	UNCHAHAR II TPS(unit2# 210)	10-08-2018	10-08-2018	YES	--	3rd Quarter
	UNCHAHAR UNIT6#500	-	31.03.2017	YES	--	3rd Quarter
	KOLDAM HPS(4 * 200)	01-07-2015	01-07-2015	YES	--	3rd Quarter
	DADRI GPS(2 * 154.51) (ST- Steam Turbine)	-	18-11-2015	YES	--	3rd Quarter
	ANTA GPS(3 * 88.71)(GT- Gas Turbine)	08-08-2014	08-08-2014	YES	--	3rd Quarter
	ANTA GPS(1 * 153.2)(ST- Steam Turbine)	08-08-2014	08-08-2014	YES	--	3rd Quarter
5	**Aravali Power Company Private Ltd**					
	ISTPP (JHAJJAR)(3 * 500)	-	25-08-2015	YES	--	3rd Quarter
6	**NHPC**					
	CHAMERA HPS (3*180)	06-08-2020	27-12-2019	YES	--	
	CHAMERA II HPS(3 * 100)	11-10-2015	11-10-2015	NO	Replacement of Excitation system in two units	3rd Quarter
	CHAMERA III HPS(Unit1#77)	29-10-2015	07-01-2012	YES	--	3rd Quarter
	CHAMERA III HPS(Unit2,3#77)	29-10-2015	19-06-2012	YES	--	3rd Quarter
	PARBATI III HEP (Unit1# 130)	21-01-2016	21-01-2016	YES	Have been done recetly. The report on PSS turning shall be submitted seperat	3rd Quarter
	DULHASTI HPS(Unit2#130)	21-01-2020	21-01-2020	YES	--	
	DULHASTI HPS(Unit1#130)	29-12-2019	29-12-2019	YES	--	
	URI HPS(Unit3# 120)	10-01-2021	10-01-2021	YES	--	
	URI HPS(Unit4# 120)	15-02-2021	15-02-2021	YES	--	
	URI HPS(Unit2# 120)	07-03-2016	07-03-2016	YES	--	3rd Quarter
	URI-II HPS(4 * 60)	Mar-14	Mar-14		Re-tunning& Step response test shall be carriedout in 2021-22	
	SALAL HPS (Unit-3,4,5,6 # 115)	16-12-2014	16-12-2014	YES	--	3rd Quarter
	KISHANGANGA(3 * 110)	18-05-20 18	18-05-20 18	YES	--	3rd Quarter
	BAIRASIUL HPS(3 * 60)	30-07-2015	30-07-2016	YES	--	3rd Quarter
	SEWA-II HPS(3 * 40)	09-07-2016	09-07-2016	YES	--	3rd Quarter
	PARBATI III HEP(4 * 130)	16-12-2016	16-12-2016	YES	--	3rd Quarter
	TANAKPUR HPS(Unit1# 31.42)	09-01-2015	09-01-2015	YES	--	3rd Quarter
	TANAKPUR HPS(Unit2,3#31.4)	24-05-2014	24-05-2014	YES	--	3rd Quarter
	DHAULIGANGA HPS(Unit1 ,2# 70)	04-05-2014	17-04-2018	YES	--	3rd Quarter
	DHAULIGANGA HPS(Unit3,4# 70)	26-06-2014	17-04-2018	YES	--	3rd Quarter
7	**PUNJAB**					
	RAJPURA(NPL) TPS(2 * 700)	22-04-2014	22-04-2014	YES	--	3rd Quarter
8	**Rajasthan**					
	KAWAI TPS(Unt1# 660)	08-08-2014	08-08-2014	YES	--	3rd Quarter
	KAWAI TPS(Unt2# 660)	09-10-2014	09-10-2014	YES	--	3rd Quarter
	CHHABRA TPS(Unit 1#250)	22-05-2018	22-05-2018	NO	--	3rd Quarter
	CHHABRA TPS(Unit 2,3,4#250)	04-10-2015	04-10-2015	NO	--	3rd Quarter
	CHHABRA TPS(Unit5# 660)	10-02-2016	10-02-2016	YES	--	3rd Quarter
	CHHABRA TPS(Unit6# 660)	7/28/2018	7/28/2018	YES	--	3rd Quarter
	KALISINDH TPS(Unit1# 600)	10-02-2016	10-02-2016	YES	--	3rd Quarter

	KALISINDH TPS(Unit2# 600)	08-02-2016	08-02-2016	YES	--	3rd Quarter
	KOTA TPS(Unit1#110)	PSS tuning and step response test of Unit#1,2,3,4,6&7 were sucessfully done on 02.03.22 to 04.03.22		YES		3rd Quarter
	KOTA TPS(Unit2#110)				--	3rd Quarter
	KOTA TPS(Unit3#195)				--	
	KOTA TPS(Unit4#195)				--	
	KOTA TPS(Unit6#110)				--	3rd Quarter
	KOTA TPS(Unit7#110)				--	3rd Quarter
	SURATGARH TPS (Unit5#250)	14-03-2022	14-03-2022	Yes	--	3rd Quarter
	SURATGARH TPS (Unit1,3,4,6#250)	05.02.22 & 06.02.22		Yes	--	3rd Quarter
	SURATGARH SSCTPS (Unit 7&8)	PSS tuning and step response test of Unit#7&8 were carried out on 28.11.20 & 30.03.21.				
	RAJWEST (IPP) LTPS(Unit1# 135)	26-04-2016	26-04-2016	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit2# 135)	14-07-2016	14-07-2016	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit3# 135)	03-01-2014	03-01-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit4# 135)	03-11-2015	03-11-2015	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit5# 135)	21-09-2014	21-09-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit6# 135)	14-08-2014	14-08-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit7# 135)	20-02-2016	20-02-2016	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit8# 135)	11-06-2014	11-06-2014	No		3rd Quarter
9	**UTTAR PRADESH**					
	ANPARA-C TPS(Unit1# 600)	22-08-2015	22-08-2015	Yes	--	3rd Quarter
	ANPARA-C TPS(Unit2# 600)	08-03-2016	08-03-2016	Yes	--	3rd Quarter
	ROSA TPS(Unit1 #300)	05-10-2021	05-10-2021	Yes	--	
	ROSA TPS(Unit2# 300)	18/2/2018	18/2/2018	Yes	--	4th Quarter
	ROSA TPS(Unit3 # 300)	03-02-2017	03-02-2017	Yes	--	4th Quarter
	ROSA TPS(Unit4# 300)	05-10-2021	05-10-2021	Yes	--	
	Anpara-A (Unit1#210)	27.09.2021	27.09.2021	Yes	--	
	Anpara-A(Unit2#210)	27.09.2021	27.09.2021	Yes	--	
	Anpara-A(Unit3#210)	25.09.2020	25.09.2020	Yes	--	
	Anpara-B(Unit4#500)	07.12.2014	07.12.2014	Yes		3rd Quarter
	Anpara-B (Unit5#500)	17.08.2014	Dec., 2019	Yes	--	
	Anpara-D(Unit6#500)	15.11.2016	15.11.2016	No	--	3rd Quarter
	Anpara-D (Unit7#500)	15.04.2017	15.04.2017	No	--	3rd Quarter
	Obra-B(Unit9#200)	22.03.2016	22.03.2016	Yes	Report enclosed.	3rd Quarter
	Obra-B(Unit10#200)	28.06.2016	20.06.2016	Yes	Report enclosed.	3rd Quarter
	Obra-B (Unit11#200)	21.01.2017	21.01.2017	Yes	Report enclosed.	3rd Quarter
	Obra-B (Unit12#200)	Unit taken on load after R&M on 22		-	PSS tuning and SRT scheduled in April, 2021.	
	Obra-B(Unit13#200)	Unit closed under R&M.		-	PSS tuning and SRT scheduled in April, 2021.	
	Parichha-B(Unit3#210)	08.01.2016	08.01.2016	Yes	--	3rd Quarter
	Parichha-B (Unit4#210)	08.01.2016	08.01.2016	Yes	--	3rd Quarter
	Parichha-C (Unit5#250)	08.02.2020	08.02.2020	No	--	
	Parichha-C(Unit3#250)	09.01.2016	09.01.2016	No	--	3rd Quarter
	Harduaganj (Unit8#250)	20.08.2015	20.08.2015	No	--	3rd Quarter
	Harduaganj (Unit3#250)	13.04.2016	13.04.2016	No	--	3rd Quarter
	Harduaganj(Unit7#105)	16.07.2021	16.07.2021	yes	--	
	Harduaganj(Unit9#250)	16.07.2021	16.07.2021	yes	--	
	LALITPUR TPS(Unit1# 660)	23.02.2022	23.02.2022	yes	--	
	LALITPUR TPS(Unit2# 660)	30.03.2021	30.03.2021	yes	--	
	LALITPUR TPS(Unit3# 660)	15.01.2022	15.01.2022	yes	--	
	ALAKNANDA HEP(Unit1# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	ALAKNANDA HEP(Unit2# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	ALAKNANDA HEP(Unit3# 82.5)	12.072017	12.072017	No	--	3rd Quarter

	ALAKNANDA HEP(Unit4# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	MEJA TPS(Unit1#660)	16.10.2018	05.09.2017	yes	--	3rd Quarter
	MEJA TPS(Unit2#660)	16.01.2021	18.05.2020	yes	--	
	Bara Unit#1				Step test for PSS checking was not performed since commissioning by erstwhile owner as per information available. PSS tuning along with step test will be performed in next AOH (May 2022 or planned shutdown)	
	Bara Unit#2	01.02.2022	01.02.2022	Yes		
	Bara Unit#3				Step test for PSS checking was not performed since commissioning by erstwhile owner as per information available. PSS tuning along with step test will be performed in next AOH (May 2022 or planned shutdown)	
	Vishnuprayag Unit#1	06/02/2021	06/02/2021	Submitted in the prescribed format provided by NRLDC to SE (R&A)		
	Vishnuprayag Unit#2	06/04/2021	06/04/2021			
	Vishnuprayag Unit#3	06/04/2021	06/04/2021			
	Vishnuprayag Unit#4	05/02/2021	05/02/2021			
10	**BBMB**					
	BHAKRA HPS(Unit1#108)	--	--	No	PSS is not provided ,shall be provided in ongoing RM&U	
	BHAKRA HPS(Unit1#108)	24.07.2015	24.07.2015	No	--	3rd Quarter
	BHAKRA HPS(Unit3#126)	--	--	No	PSS is not provided ,shall be provided in ongoing RM&U	
	BHAKRA HPS(Unit4#126)	--	--	No	--	
	BHAKRA HPS(Unit5#126)	--	--	No	--	
	BHAKRA HPS(Unit6#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	18.02.2016	18.02.2016	No	--	3rd Quarter
	BHAKRA HPS(Unit7#157)	18.02.2017	18.02.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#1 165)	08.08.2017	08.08.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#2 165)	08.08.2018	08.08.2018	No	--	3rd Quarter
	DEHAR HPS(Unit#3 165)	08.08.2019	08.08.2019	No	--	
	DEHAR HPS(Unit#4 165)	02.07.2017	02.07.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#5 165)	08.08.2019	08.08.2019	No	--	
	DEHAR HPS(Unit#6 165)	02.07.2017	02.07.2017	No	--	3rd Quarter
	PONG HPS(6 * 66)	--	--	--	PSS not provided.RM&U agenda under considration.	