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/106/01/2022/1689-1730 दिनांक: 11.02.2022

विषय: प्रचालन समन्वय उप-समिति की192वीं बैठक की कार्यसूची।
Subject: Agenda of 192nd OCC meeting.

प्रचालन समन्वय उप-समिति की **192वीं** बैठक का आयोजन वीडियो कॉन्फ्रेंसिंग के माध्यम से दिनांक **18.02.2022** 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।

192nd meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **18.02.2022** 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.

11/02/2022.

(सौमित्र मजूमदार)
अधीक्षण अभियंता (प्रचालन)

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

1. Confirmation of Minutes

The minutes of the 191st OCC meeting were issued vide letter of even number dated 08.02.2022.

Sub-committee may deliberate and kindly confirm the Minutes.

2. Review of Grid operations

2.1 Power Supply Position (Provisional) for January 2022

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

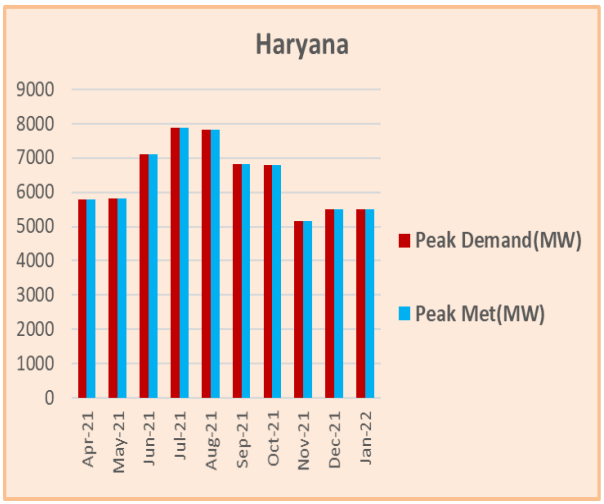
State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	100	125	25.2%	230	271	17.8%
	(Req)	130	125	-3.7%	280	271	-3.2%
DELHI	(Avl)	3559	2193	-38.4%	5300	5104	-3.7%
	(Req)	2350	2193	-6.7%	5300	5104	-3.7%
HARYANA	(Avl)	4870	3666	-24.7%	10860	7164	-34.0%
	(Req)	4090	3671	-10.2%	7627	7164	-6.1%
HIMACHAL PRADESH	(Avl)	996	1037	4.2%	1975	2030	2.8%
	(Req)	995	1038	4.4%	1980	2030	2.5%
J&K and LADAKH	(Avl)	980	1732	76.7%	3610	2787	-22.8%
	(Req)	2090	1876	-10.2%	2920	3037	4.0%
PUNJAB	(Avl)	4780	3722	-22.1%	9100	7086	-22.1%
	(Req)	4024	3758	-6.6%	7368	7086	-3.8%
RAJASTHAN	(Avl)	8510	7704	-9.5%	18870	15634	-17.1%
	(Req)	8480	7713	-9.0%	15500	15634	0.9%
UTTAR PRADESH	(Avl)	9920	9688	-2.3%	19500	19840	1.7%
	(Req)	9610	9688	0.8%	19500	19840	1.7%
UTTARAKHAND	(Avl)	1246	1282	2.9%	2242	2468	10.1%
	(Req)	1271	1284	1.0%	2350	2468	5.0%
NORTHERN REGION	(Avl)	34961	31148	-10.9%	73700	56200	-23.7%
	(Req)	33040	31347	-5.1%	56300	56400	0.2%

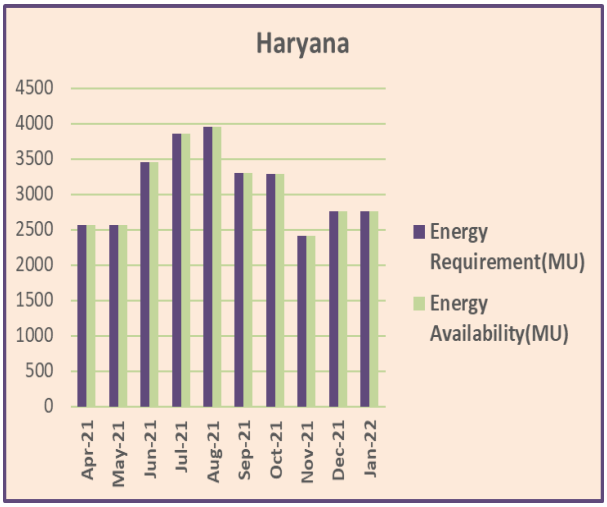
As per above, negative / significant variation (≥5%) in Actual Power Supply Position(Provisional) vis-à-vis Anticipated figures is observed for the month of January-2022 in terms of Energy Requirement for Chandigarh, Delhi, Haryana, UTs of J&K and Ladakh, Punjab, Rajasthan and in terms of Peak Demand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

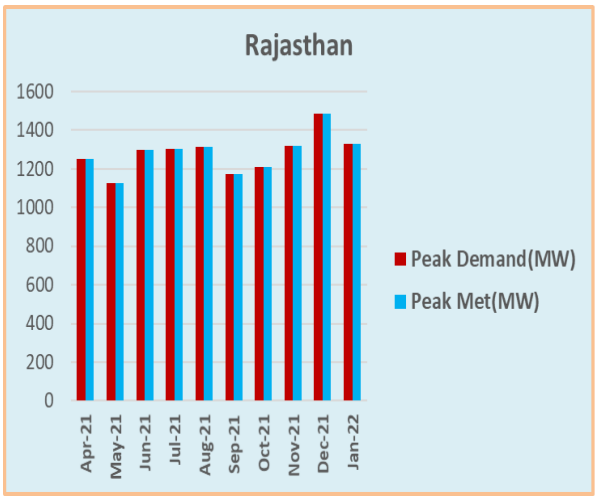
All SLDCs are requested to furnish provisional and revised power supply position in prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively for the compliance of Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.

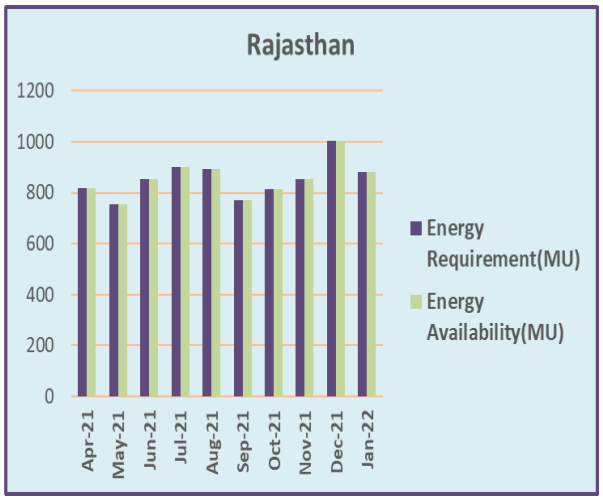
2.2 Power Supply Position of NCR

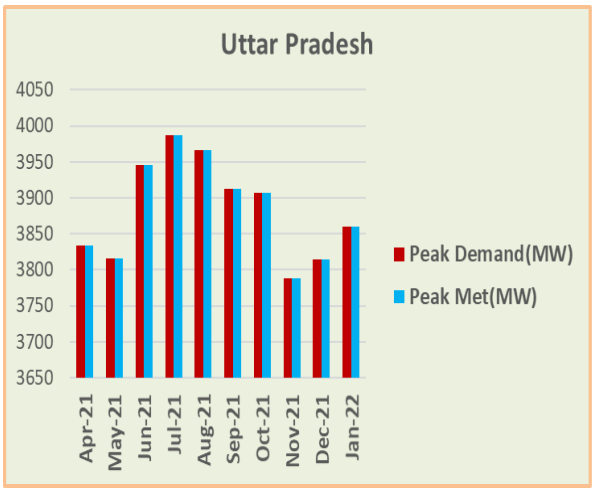
NCR Planning Board (NCRPB) is closely monitoring the power supply position of National Capital Region. Monthly power supply position for NCR till the month of January-2022 is available on NRPC website (http://164.100.60.165). Power supply position during the current financial year is shown as under:

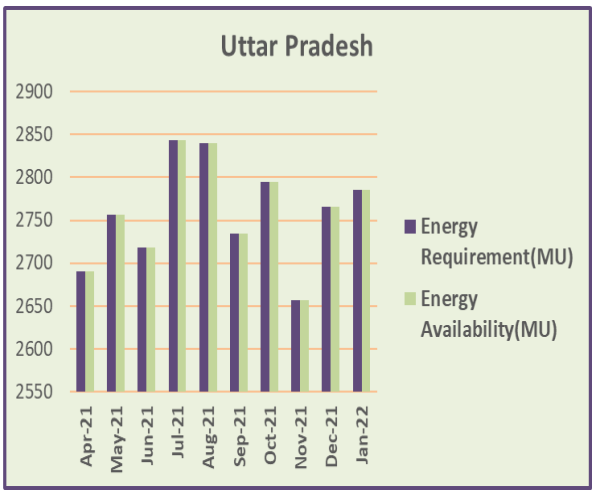


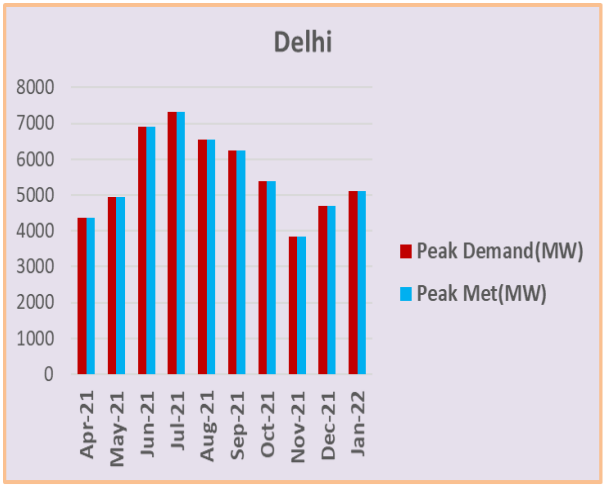


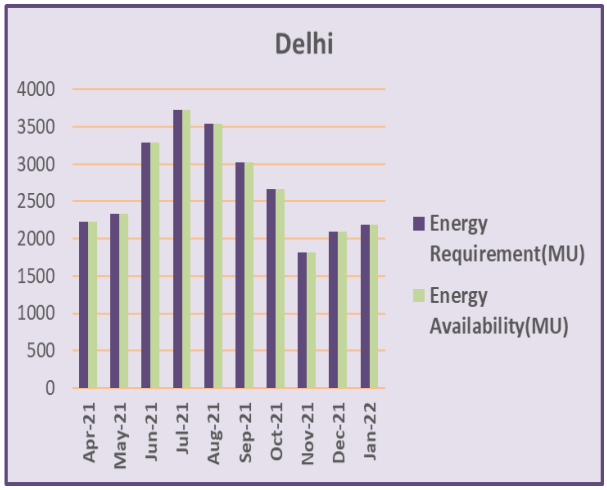












3. Maintenance Programme of Generating Units and Transmission Lines

3.1. Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of March-2022 is scheduled on 17-February-2022 via Video Conferencing.

3.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of March-2022 is scheduled on 17-February-2022 via Video conferencing.

4. Planning of Grid Operation

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

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)
CHANDIGARH	Availability	110	260
	Requirement	110	240
	Surplus / Shortfall	0	20
	% Surplus / Shortfall	0.0%	8.3%
DELHI	Availability	3661	5411
	Requirement	2050	4200
	Surplus / Shortfall	1611	1211
	% Surplus / Shortfall	78.6%	28.8%
HARYANA	Availability	4800	10580
	Requirement	4100	7300
	Surplus / Shortfall	700	3280
	% Surplus / Shortfall	17.1%	44.9%
HIMACHAL PRADESH	Availability	936	1864
	Requirement	946	1850
	Surplus / Shortfall	-9	14
	% Surplus / Shortfall	-1.0%	0.8%
J&K and	Availability	1220	3920

State / UT	Availability / Requirement	Revised Energy	Revised Peak (MW)
LADAKH	Requirement	1970	3460
	Surplus / Shortfall	-750	460
	% Surplus / Shortfall	-38.1%	13.3%
PUNJAB	Availability	5185	8000
	Requirement	4172	7440
	Surplus / Shortfall	1013	560
	% Surplus / Shortfall	24.3%	7.5%
RAJASTHAN	Availability	10289	19000
	Requirement	8300	15100
	Surplus / Shortfall	1989	3900
	% Surplus / Shortfall	24.0%	25.8%
UTTAR PRADESH	Availability	10540	19500
	Requirement	10075	19500
	Surplus / Shortfall	465	0
	% Surplus / Shortfall	4.6%	0.0%
UTTARAKHAND	Availability	1132	2080
	Requirement	1153	2100
	Surplus / Shortfall	-22	-20
	% Surplus / Shortfall	-1.9%	-1.0%
NORTHERN REGION	Availability	37873	66500
	Requirement	32876	57600
	Surplus / Shortfall	4997	8900
	% Surplus / Shortfall	15.2%	15.5%

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of March-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	Oct-2021
HIMACHAL PRADESH	Apr-2018	Dec-2021
PUNJAB	Apr-2018	Jul-2021
RAJASTHAN	Apr-2018	Nov-2021
UTTAR PRADESH	Apr-2018	Oct-2021
UTTARAKHAND	Apr-2018	Sept-2018

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. 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.

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 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.

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 09th February 2022) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	78.05	17	12.7
ANPARA TPS	2630	85.10	17	19.5
BARKHERA TPS	90	9.85	26	6.5
DADRI (NCTPP)	1820	35.80	26	9.1
GH TPS (LEH.MOH.)	920	13.01	26	24.7
GOINDWAL SAHIB TPP	540	35.23	26	5.2
HARDUAGANJ TPS	1265	4.31	26	10.1
INDIRA GANDHI STPP	1500	66.02	26	22.8
KAWAI TPS	1320	86.59	26	**2.4**
KHAMBARKHERA TPS	90	7.44	26	10.9
KOTA TPS	1240	77.72	26	7.3
KUNDARKI TPS	90	9.99	26	14.3
LALITPUR TPS	1980	45.91	26	10.4
MAHATMA GANDHI TPS	1320	76.78	26	**3.6**
MAQSOODPUR TPS	90	9.94	26	10.9
MEJA STPP	1320	72.03	26	19.6
OBRA TPS	1094	52.76	26	8.6
PANIPAT TPS	710	62.04	26	11.5
PARICHHA TPS	1140	41.63	26	4.7
PRAYAGRAJ TPP	1980	69.11	26	5.6
RAJIV GANDHI TPS	1200	33.65	26	17.4
RAJPURA TPP	1400	65.35	26	9.0
RIHAND STPS	3000	87.01	17	19.0

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ROPAR TPS	840	10.29	26	23.6
ROSA TPP Ph-I	1200	58.94	26	12.5
SINGRAULI STPS	2000	74.79	17	18.4
SURATGARH TPS	1500	24.56	26	**2.5**
TALWANDI SABO TPP	1980	60.89	26	**1.0**
TANDA TPS	1760	37.31	26	20.6
UNCHAHAR TPS	1550	64.84	26	10.4
UTRAULA TPS	90	9.84	26	10.5
YAMUNA NAGAR TPS	600	65.50	26	16.4
CHHABRA-I PH-1 TPP	500	78.28	26	**0.3**
KALISINDH TPS	1200	77.44	26	**3.3**
SURATGARH STPS	1320	0.00	26	**2.1**
CHHABRA-I PH-2 TPP	500	34.95	26	6.0
CHHABRA-II TPP	1320	66.35	26	**2.2**

11. Resource Adequacy and Peak Demand of Delhi

11.1. A Meeting was chaired by Secretary (Power), MoP on 25.01.2022 to review the Preparedness to meet the forecasted electricity peak demand for Delhi during 2022-23.

11.2. In view of deliberations in meeting dt. 25.01.2022, Delhi SLDC needs to update status on following points so that the state can take advance corrective action in order to avoid any shortage during FY 2022-23 and future years:

i. Anticipated peak demand of Delhi in the coming FY is around 8200MW (predicted by Delhi SLDC). On the contrary, availability may be around 7300MW by considering Delhi's share in Dadri-I from where Delhi is not requisitioning power. Thus, Delhi needs to tie up additional power to meet its anticipated demand in 2022-23.

ii. Delhi's import capability is around 6500MW and it can be enhanced after commissioning of 400/220kV Dwarka and Gopalpur. 500MVA ICT at Dwarka S/s has been charged and synchronized on 08.02.2022 through LILO of 400kV Jhatikara-Bamnauli ckt-I. Status of Gopalpur needs to be submitted by Delhi.

iii. Delhi SLDC needs to submit its plan to enhance ATC/TTC limit for meeting future demand growth.

iv. Delhi SLDC needs to submit its plan on meeting its peak demand from power exchange.

v. Planned outages of Delhi generators (agreed in LGBR meetings) to be monitored wr.t. actual unit outages.

Members may kindly deliberate.

12. Transmission constraints in Northern Region

12.1. In 191st OCC, NRPC Sectt representative apprised the forum that a meeting was

chaired by JS (OM & RR), MoP on 12.01.2022, wherein transmission constraints were discussed. Concerned utilities were requested to submit action plan to mitigate the constraint.

12.2. In 191st OCC, NRLDC representative mentioned that a format would be circulated amongst the concerned utilities of NR for whom the transmission constraint was discussed in the meeting and they were requested to update the same and submit on 18.01.2022 itself.

12.3. UPSLDC vide letter dated 02.02.2022 has submitted a list of overload 220kV transmission line and 400kV sub-stations with N-1 non-compliant ICTs. (Copy of the letter is attached as **Annexure-A.III**.)

Members may kindly deliberate.

13. Implementation of revised SPS scheme for evacuation of generation from Lalitpur TSS (Agenda by UP SLDC)

13.1. This has reference to the previous agenda placed by UP SLDC in the 189th OCC meeting for the Implementation of revised SPS scheme for evacuation of generation from Lalitpur TSS.

13.2. UP SLDC vide letter dated 15.11.2021 had submitted the proposed revised logic for SPS for evacuation of Lalitpur TPS in view of commissioning of 765kV Fatehabad – Greater Noida line. UP SLDC had submitted the old & the proposed logic along with the comments of Lalitpur TPS and requested for the approval of the revised scheme.

13.3. In 189th OCC, forum approved the SPS scheme as per the discussion recorded in the MoM of the 189th OCC.

13.4. UPSLDC vide letter dated 25.01.2022 has informed that revised SPS scheme for evacuation of generation from Lalitpur TPS, approved in 189th OCC meeting, has been implemented on **22.02.2022**.

Members may kindly note.

14. Forced Shifting of Tower no. 169 of 400kV D/C Roorki-Kashipur I & II line on new Pile Foundation due to Change in Natural River course: Deemed availability of the Outage (Agenda by POWERGRID)

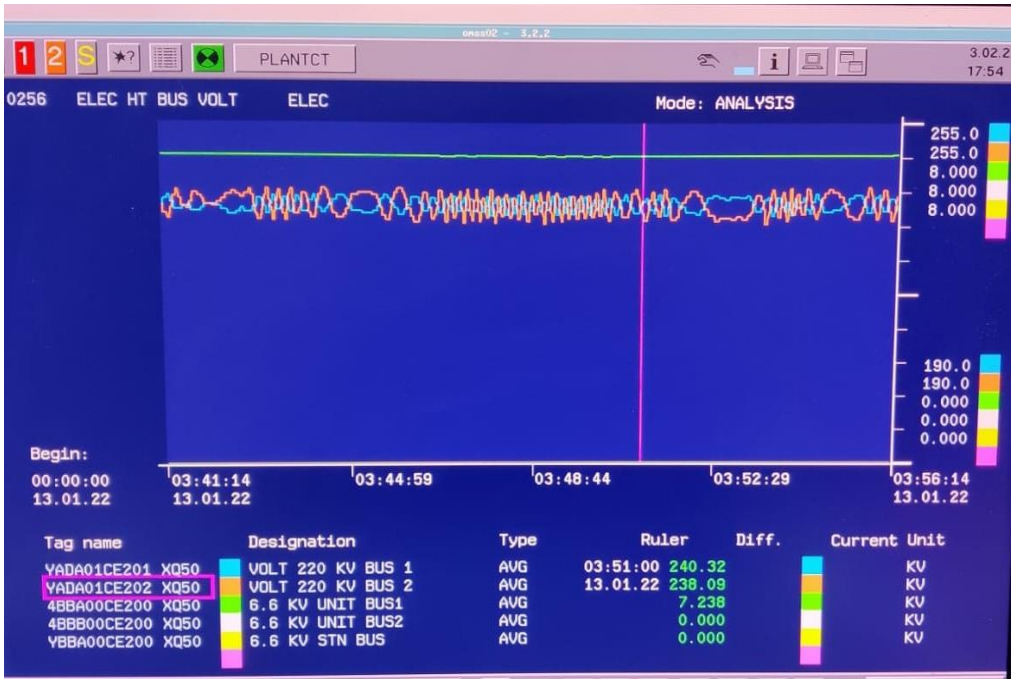
14.1. This has reference to the previous agenda placed by POWERGRID in the 191st OCC meeting for the deemed availability of the Outage.

14.2. In line with discussion held in 191st OCC, NRPC Sectt. vide email dated 02.02.2022 requested Uttarakhand SLDC to kindly take up the matter with the state DISCOM viz. UPCL and comments/views of UPCL in this regard shall be provided to NRPC Sectt.

Members may kindly deliberate.

15. High Bus voltage at Anta (Agenda by NTPC)

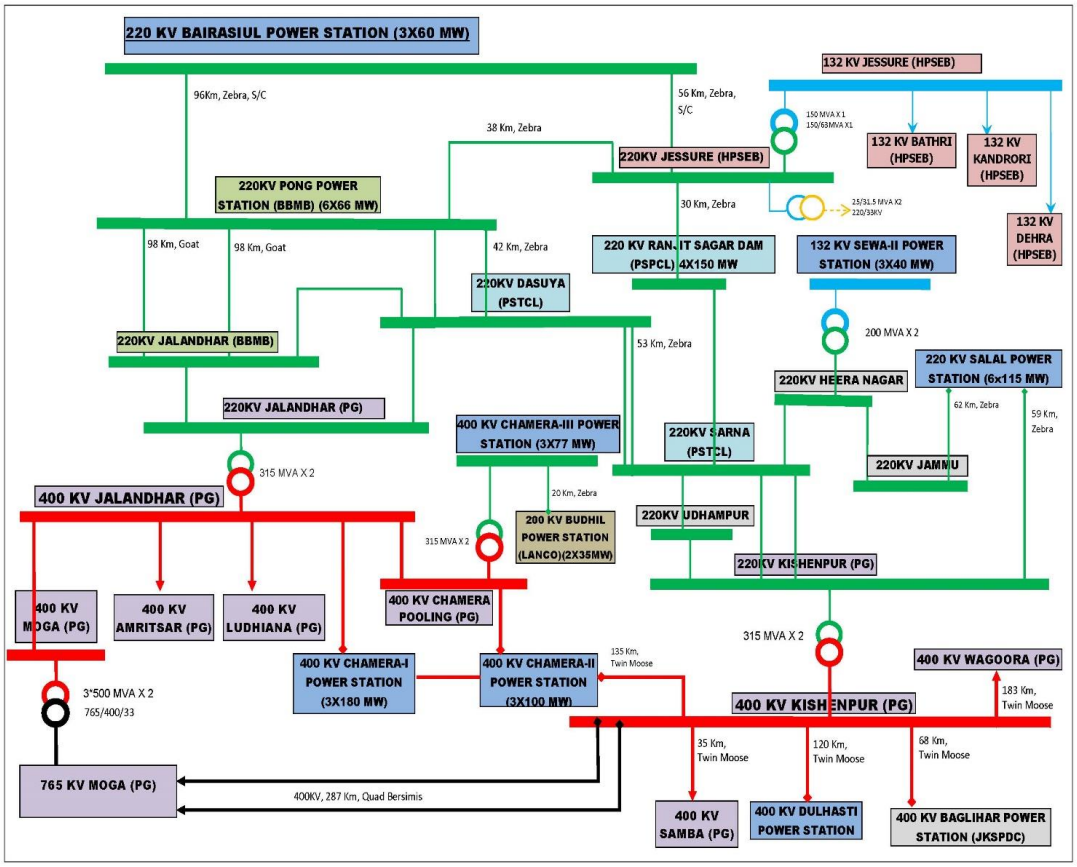
15.1. NTPC has intimated vide email dated 03.02.2022 that at 03:51:52 hrs on 13/01/2022, bus voltage at Anta end reached to 241 KV. NTPC has mentioned that bus voltage needs to be maintained within safe limit for System/Equipment safety. Copy of the SCADA screen submitted by NTPC is enclosed below:



Members may kindly deliberate.

16. High Voltage issue in 220KV Bairasiul-Pong and 220KV Bairaisul-Jessore Transmission lines (Agenda by NHPC)

Brief: Bairasiul Power Station is situated in Chamba Distrit (HP) having three units of 60MW capacity each. Bairasiul is ROR with Pondage Power Station. Power station is connected with 220KV Bairasiul-Pong and 220KV Bairasiul-Jessore Transmission lines. The power generated from Bairasiul is being evacuated through these 220KV transmission lines. The transmission system of Bairasiul is shown under:



It has been observed that the 220KV Bairasiul-Pong and 220KV Bairasiul-Jessore lines are being opened daily due to high voltage and tripping of these lines is also being observed frequently. Frequent tripping/opening of lines impacts the health of switchgear system of power station. Bairasiul Power Station has also faced difficulty in synchronization of units due to high voltage of lines. Generally high voltage of lines is observed during the winter season, when generation is NIL at Bairasiul Power Station.

This is for the kind information of the OCC forum with request to kindly take necessary action to overcome this high voltage issue in 220KV Bairasiul-Pong and 220KV Bairasiul-Jessore lines.

The details of lines opened/tripped due to high voltage during last few days (15 January 2022 to 06 February 2022) is shown below:

Outage of Bairasiul Line#1				
Outage Date	**Trip Time**	**Restore Time**	**Outage Time**	**Reasons**
15-Jan-22	0:00:00	6:59:00	6.98	Manually opened due to high voltage
15-Jan-22	9:04:00	17:31:00	8.45	shut down taken by pong
15-Jan-22	22:29:00	23:59:59	1.52	Manually opened due to high voltage
16-Jan-22	0:00:00	6:51:00	6.85	Manually opened due to high voltage
16-Jan-22	14:00:00	19:35:00	5.58	tripped due to over voltage
16-Jan-22	21:48:00	23:59:59	2.2	Manually opened due to high voltage
17-Jan-22	0:00:00	6:20:00	6.33	Manually opened due to high voltage
17-Jan-22	22:05:00	23:59:59	1.92	Manually opened due to high voltage
18-Jan-22	0:00:00	5:50:00	5.83	Manually opened due to high voltage
18-Jan-22	22:40:00	23:59:59	1.33	Manually opened due to high voltage
19-Jan-22	0:00:00	7:05:00	7.08	Manually opened due to high voltage
19-Jan-22	21:46:00	23:59:59	2.23	Manually opened due to high voltage
20-Jan-22	0:00:00	6:39:00	6.65	Manually opened due to high voltage
20-Jan-22	22:10:00	23:59:59	1.83	Manually opened due to high voltage
21-Jan-22	0:00:00	6:20:00	6.33	Manually opened due to high voltage
21-Jan-22	22:11:00	23:59:00	1.8	Manually opened due to high voltage
22-Jan-22	0:00:00	5:59:00	5.98	Manually opened due to high voltage.
22-Jan-22	21:25:00	23:59:59	2.58	Manually opened due to high voltage.
23-Jan-22	0:00:00	7:51:00	7.85	Manually opened due to high voltage
23-Jan-22	20:51:00	21:26:00	0.58	due to problem at pong end
23-Jan-22	21:40:00	23:59:59	2.33	Manually opened due to high voltage
24-Jan-22	0:00:00	7:01:00	7.02	Circuit breaker opened manually due to high voltage
24-Jan-22	21:55:00	23:59:59	2.08	Circuit breaker opened manually due to high voltage
25-Jan-22	0:00:00	6:28:00	6.47	Manually opened due to high voltage
25-Jan-22	21:40:00	23:59:59	2.33	Manually opened due to high voltage
26-Jan-22	0:00:00	6:35:00	6.58	Manually opened due to high voltage
26-Jan-22	21:35:00	23:59:59	2.42	Manually opened due to high voltage
27-Jan-22	0:00:00	6:30:00	6.5	Manually opened due to high voltage
27-Jan-22	22:07:00	23:59:59	1.88	Manually opened due to high voltage
28-Jan-22	0:00:00	6:46:00	6.77	Manually opened due to high voltage
28-Jan-22	21:30:00	23:59:59	2.5	Manually opened due to high voltage
29-Jan-22	0:00:00	6:25:00	6.42	Manually opened due to high voltage
29-Jan-22	21:51:00	23:59:59	2.15	Manually opened due to high voltage
30-Jan-22	0:00:00	6:17:00	6.28	Manually opened due to high voltage
30-Jan-22	13:01:00	17:32:00	4.52	tripped due to high voltage
30-Jan-22	21:52:00	23:59:59	2.13	Manually opened due to high voltage
31-Jan-22	0:00:00	6:19:00	6.32	Manually opened due to high voltage

31-Jan-22	21:39:00	23:59:59	2.35	Manually opened due to high voltage
1-Feb-22	0:00:00	6:34:00	6.57	Manually opened due to high voltage
1-Feb-22	23:05:00	23:59:59	0.92	Manually opened due to high voltage
2-Feb-22	0:00:00	6:23:00	6.38	Manually opened due to high voltage
2-Feb-22	22:53:00	23:59:59	1.12	Manually opened due to high voltage
3-Feb-22	0:00:00	7:24:00	7.4	Manually opened due to high voltage
3-Feb-22	23:30:00	23:59:59	0.5	Manually opened due to high voltage
4-Feb-22	0:00:00	7:02:00	7.03	Manually opened due to high voltage
4-Feb-22	22:04:00	23:59:59	1.93	Manually opened due to high voltage
5-Feb-22	0:00:00	7:57:00	7.95	Manually opened due to high volta
5-Feb-22	21:25:00	23:59:59	2.58	Manually opened due to high volta
6-Feb-22	0:00:00	6:51:00	6.85	Manually opened due to high voltage
6-Feb-22	23:08:00	23:59:59	0.87	Manually opened due to high voltage
Outage of Baira Siul Line#2				
15-Jan-22	0:00:00	6:28:00	6.47	Manually opened due to high voltage
15-Jan-22	22:33:00	23:59:59	1.45	Manually opened due to high voltage
16-Jan-22	0:00:00	5:52:00	5.87	Manually opened due to high voltage
16-Jan-22	14:00:00	16:45:00	2.75	tripped due to over voltage
16-Jan-22	21:49:00	23:59:59	2.18	Manually opened due to high voltage
17-Jan-22	0:00:00	5:49:00	5.82	Manually opened due to high voltage
17-Jan-22	22:06:00	23:59:59	1.9	Manually opened due to high voltage
18-Jan-22	0:00:00	6:41:00	6.68	Manually opened due to high voltage
18-Jan-22	22:41:00	23:59:59	1.32	Manually opened due to high voltage
19-Jan-22	0:00:00	6:34:00	6.57	Manually opened due to high voltage
19-Jan-22	9:13:00	18:51:00	9.63	shutdown taken by jassore
19-Jan-22	22:10:00	23:59:59	1.83	Manually opened due to high voltage
20-Jan-22	0:00:00	6:33:00	6.55	Manually opened due to high voltage
20-Jan-22	22:15:00	23:59:59	1.75	Manually opened due to high voltage
21-Jan-22	0:00:00	6:15:00	6.25	Manually opened due to high voltage
21-Jan-22	22:07:00	23:59:00	1.87	Manually opened due to high voltage
22-Jan-22	0:00:00	5:53:00	5.88	Manually opened due to high voltage.
22-Jan-22	21:28:00	23:59:59	2.53	Manually opened due to high voltage.
23-Jan-22	0:00:00	7:31:00	7.52	Manually opened due to high voltage
23-Jan-22	17:10:00	18:47:00	1.62	due to problem at assure end
23-Jan-22	21:53:00	23:59:59	2.12	Manually opened due to high voltage
24-Jan-22	0:00:00	6:25:00	6.42	Circuit breaker opened manually due to high voltage
24-Jan-22	21:57:00	23:59:59	2.05	Circuit breaker opened manually due to high voltage
25-Jan-22	0:00:00	6:21:00	6.35	Manually opened due to high voltage
25-Jan-22	21:41:00	23:59:59	2.32	Manually opened due to high voltage
26-Jan-22	0:00:00	6:10:00	6.17	Manually opened due to high voltage
26-Jan-22	21:38:00	23:59:59	2.37	Manually opened due to high voltage
27-Jan-22	0:00:00	6:25:00	6.42	Manually opened due to high voltage
27-Jan-22	22:05:00	23:59:59	1.92	Manually opened due to high voltage
28-Jan-22	0:00:00	6:32:00	6.53	Manually opened due to high voltage
28-Jan-22	21:34:00	23:59:59	2.43	Manually opened due to high voltage
29-Jan-22	0:00:00	6:05:00	6.08	Manually opened due to high voltage
29-Jan-22	21:48:00	23:59:59	2.2	Manually opened due to high voltage
30-Jan-22	0:00:00	6:07:00	6.12	Manually opened due to high voltage
30-Jan-22	13:01:00	17:09:00	4.13	tripped due to high voltage
30-Jan-22	21:56:00	23:59:59	2.07	Manually opened due to high voltage
31-Jan-22	0:00:00	6:11:00	6.18	Manually opened due to high voltage
31-Jan-22	21:41:00	23:59:59	2.32	Manually opened due to high voltage
1-Feb-22	0:00:00	6:10:00	6.17	Manually opened due to high voltage
1-Feb-22	23:07:00	23:59:59	0.88	Manually opened due to high voltage

2-Feb-22	0:00:00	6:08:00	6.13	Manually opened due to high voltage
2-Feb-22	22:55:00	23:59:59	1.08	Manually opened due to high voltage
3-Feb-22	0:00:00	6:08:00	6.13	Manually opened due to high voltage
3-Feb-22	23:33:00	23:59:59	0.45	Manually opened due to high voltage
4-Feb-22	0:00:00	6:55:00	6.92	Manually opened due to high voltage
4-Feb-22	22:30:00	23:59:59	1.5	Manually opened due to high voltage
5-Feb-22	0:00:00	6:03:00	6.05	Manually opened due to high voltage
5-Feb-22	21:35:00	23:59:59	2.42	Manually opened due to high voltage
6-Feb-22	0:00:00	6:25:00	6.42	Manually opened due to high voltage
6-Feb-22	23:09:00	23:59:59	0.85	Manually opened due to high voltage

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

17. Grid Highlights for January 2022

Maximum energy consumption of Northern Region was 1077.25 Mus on 19th Jan'22 and it was 0.03 % lower than Jan' 2021 (1077.59 Mus 30th Jan'21)

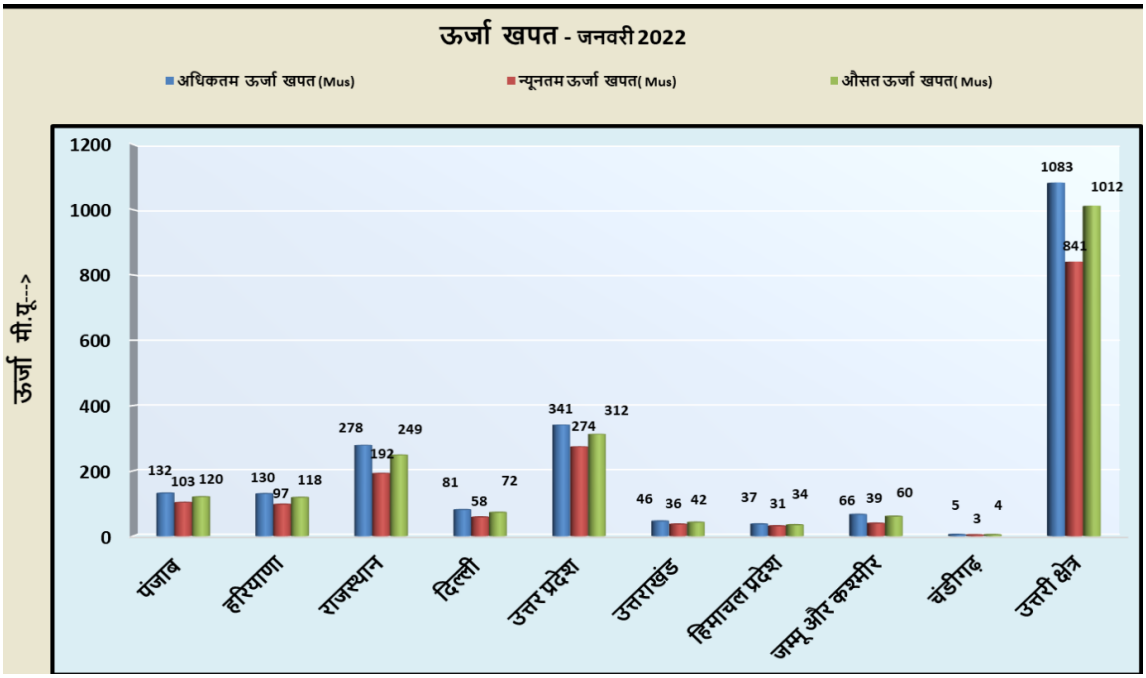
Average energy consumption per day of Northern Region was 1007 Mus and it was 0.65 % higher than Jan'21 (1001 Mus per day)

Maximum Demand met of Northern Region was 56213 MW met on 28th Jan'22@ 11:00 hours (Based on data submitted by Constituents) as compared to 57345 MW met on 30th Jan'21 @ 11:00 hours

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

Max Demand Met	**All Time High Record**		**Previous Record (upto Dec-21)**	
	Value (MW)	**Achieved on**	**Value (MW)**	**Achieved on**
Uttarakhand	2468	28.01.2022 09:00 hrs	2372	22.01-2021 08:00 hrs
Himachal Pradesh	2030	07.01.2022 10:00 hrs	1955	18.12.2021 08:30 hrs
J&K (UT) & Ladakh (UT)	2787	30.01.2022 19:00 hrs	2743	31.12.2021 19:00 hrs

Energy Consumption	**All Time High Record**		**Previous Record (upto Dec-21)**	
	Value (MU)	**Achieved on**	**Value (MU)**	**Achieved on**
J&K (UT) & Ladakh (UT)	59.95	17.01.22	57.52	31.12.21



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

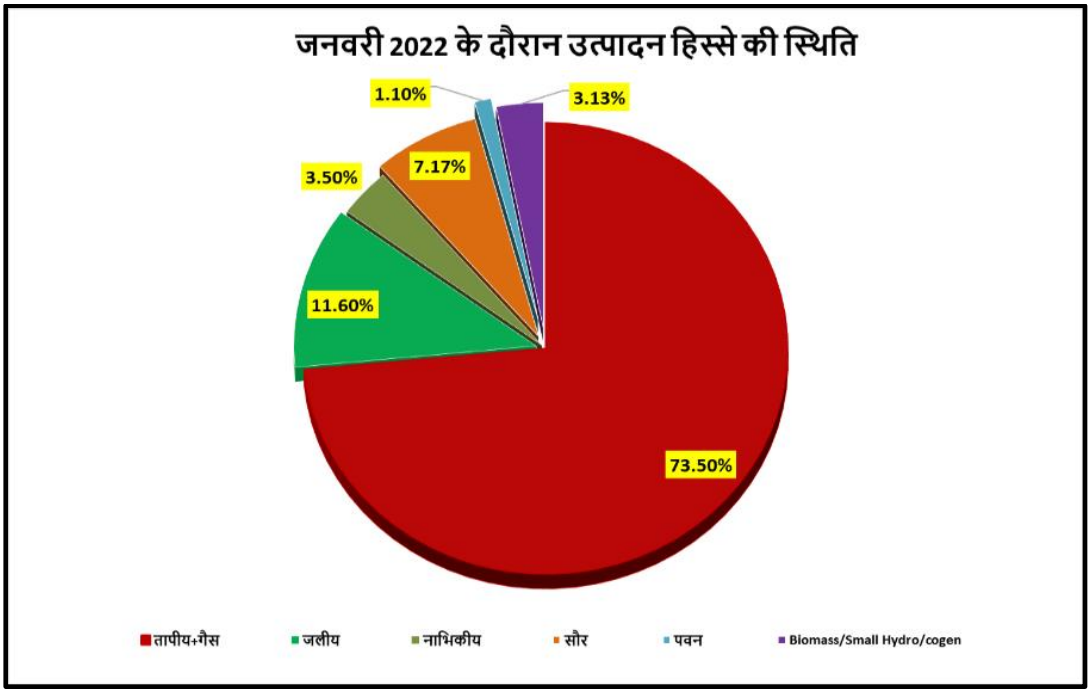
क्षेत्र/राज्य	जनवरी- **2021**	जनवरी- **2022**	% अंतर
चंडी गढ़	4.00	4.04	1.07
दिल्ली	72.98	72.46	-0.71
हिमाचल प्रदेश	32.48	34.19	5.25
हरियाणा	126.43	118.33	-6.41
जम्मू और कश्मीर	53.35	55.87	4.71
पंजाब	123.62	120.17	-2.79
राजस्थान	251.29	248.50	-1.11
उत्तराखंड	40.65	41.84	2.93
उत्तर प्रदेश	296.98	311.95	5.04
उत्तरी क्षेत्र	1001.78	1007.34	0.55

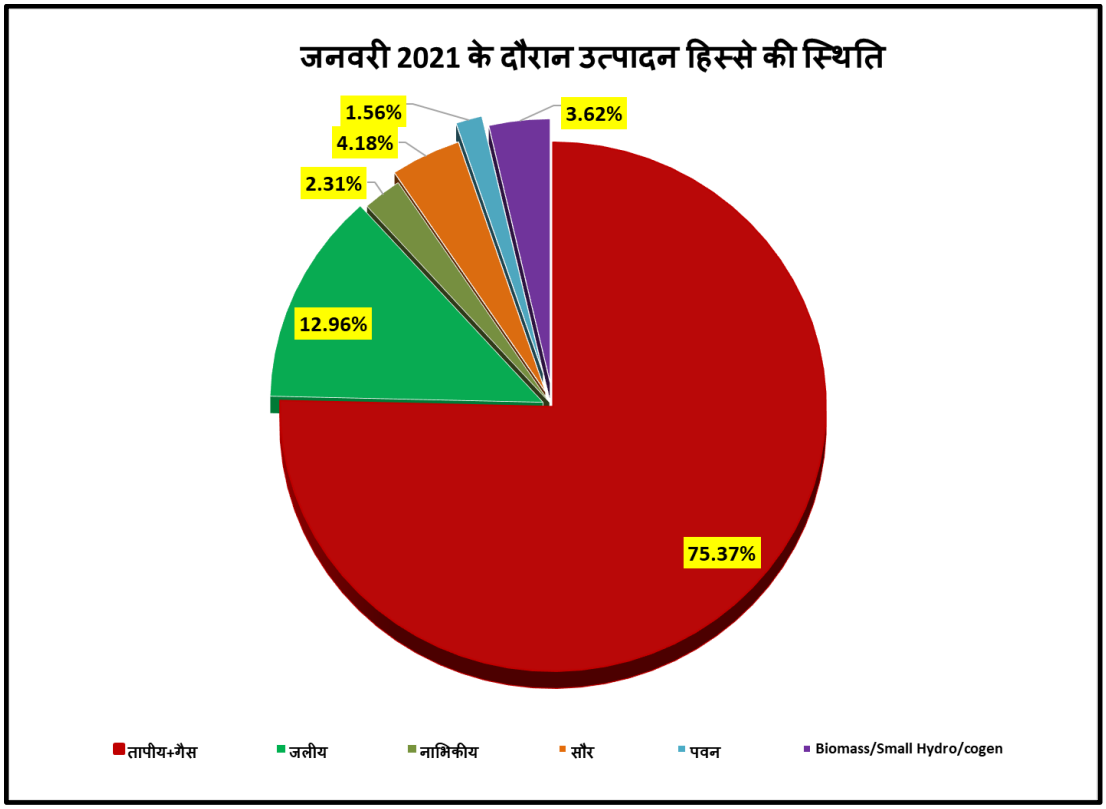
Frequency Data Comparison

Month	**Avg. Freq. (Hz)**	**Max. Freq. (Hz)**	**Min. Freq. (Hz)**	**<49.90 (% time)**	**49.90 – 50.05 (% time)**	**>50.05 (% time)**
Jan'22	50.00	50.28	49.65	5.8	75.7	18.5
Jan'21	50.01	50.24	49.70	4.4	76.2	19.4

- Total average per day energy production by Northern region was 851.59 Mus in the month of Jan'22 in comparison of 783.82 Mus in Jan'21.

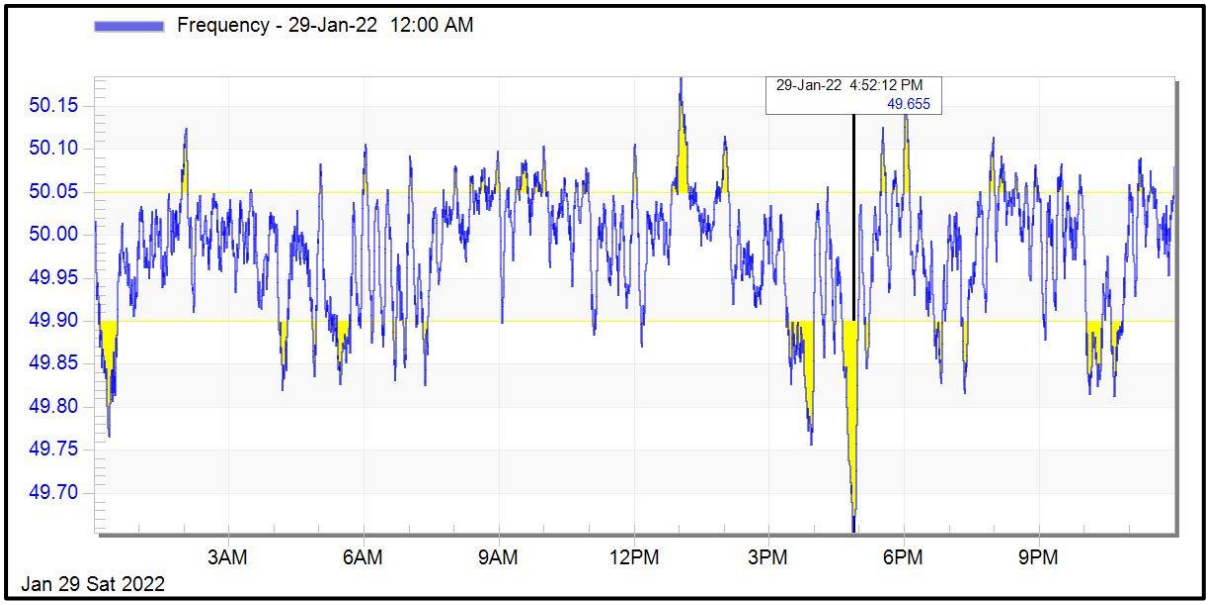
- The fuel wise share of generation is shown below.

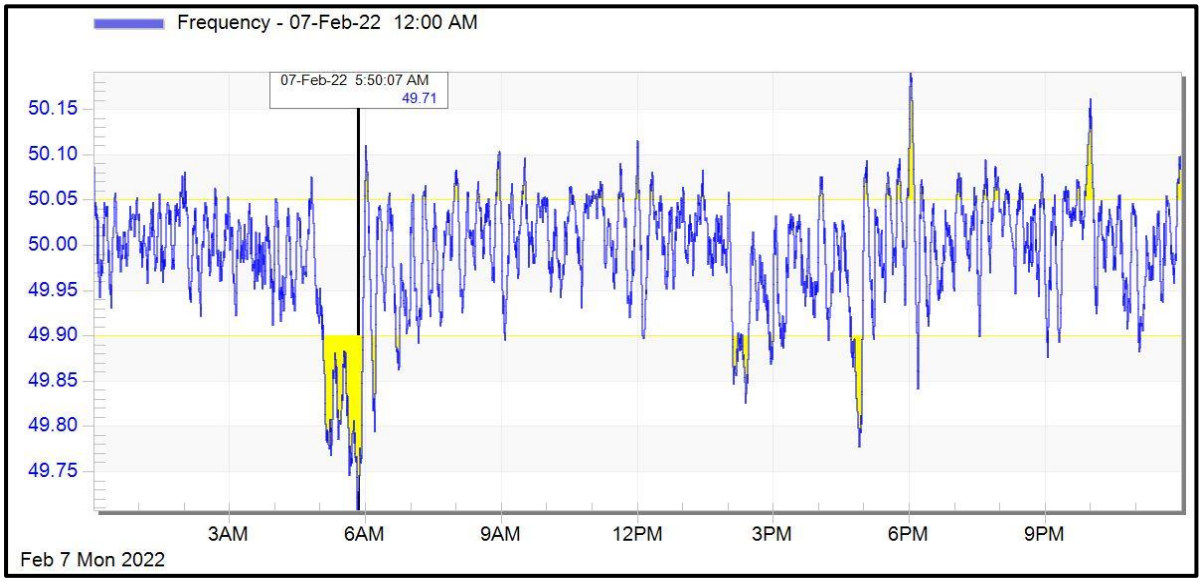




In Jan'22, Frequency remained within IEGC band for only 75.7 % of the time (0.5% of time lower than Jan'21). Emergent contingency events during such times such as large generation outage, could result in further drop in frequency and therefore, overdrawals below 49.90 Hz must be controlled quickly in order to keep system secure.

Frequency profile was very poor on 29th Jan 2022 and 7th Feb 2022 as shown below. Some of the NR states such as Rajasthan & UP had slight overdrawl in the range of 300-400MW during these instances.



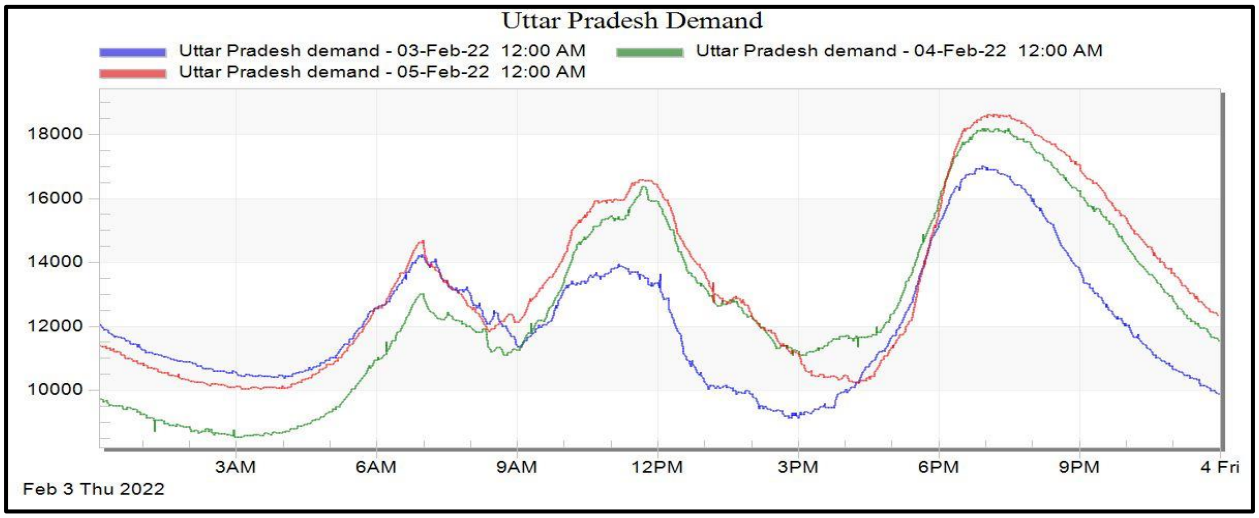


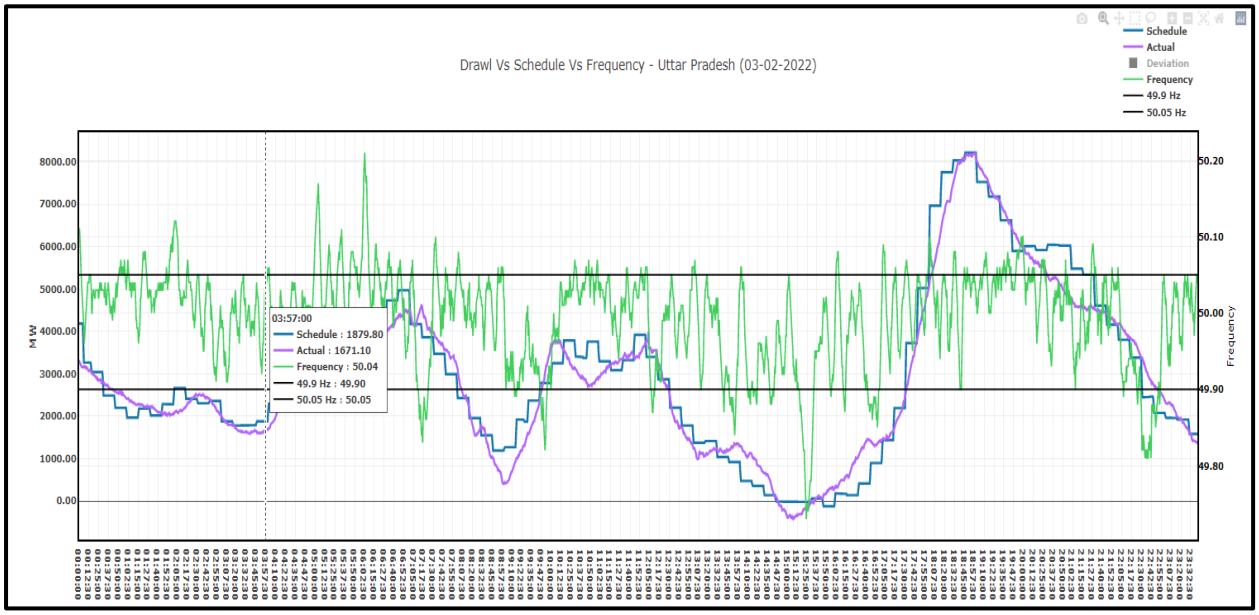
On some of the occasions, few NR states had overdrawal contributing to low frequency operation. NRLDC has been continuously requesting all states to maintain its drawl within schedule during low frequency instances and also take necessary measures for revival of intrastate generating units. NR Constituents are once again requested to take initiatives to minimise sudden load changeovers at hourly boundaries and also monitor performance of generators under their jurisdiction when the frequency is having large excursions. All utilities are asked to ensure that RGMO/FGMO of generators under their control areas are in service and are responding as per frequency changes.

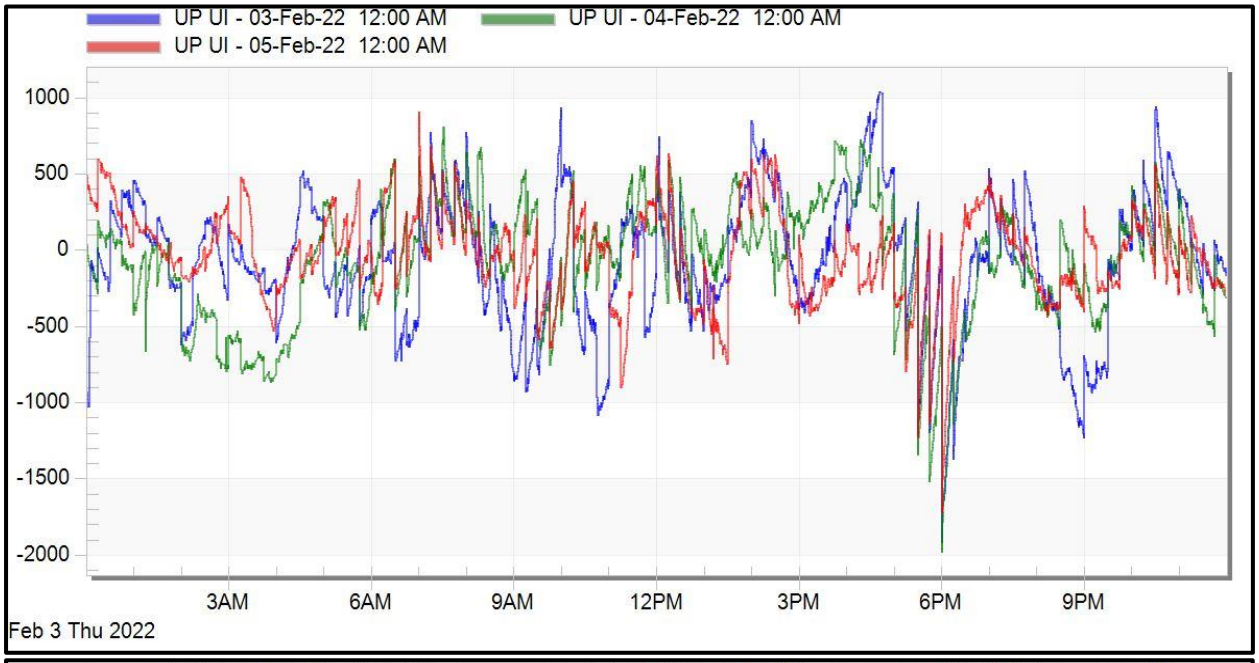
From the demand pattern of UP state, it can be observed that there is sharp rise in demand from 4pm-7pm during evening hours. To meet this ramp in demand of nearly 8000MW in 3 hours, it is observed that UP state is almost fully dependent on the ISGS resources. Schedule and actual drawl of UP suggest that the schedule varies from 0-1000MW at 4pm to 8000-9000MW at 7pm. As a result of this, the deviation by UP state control area also varies significantly and leads to situation wherein UI is upto

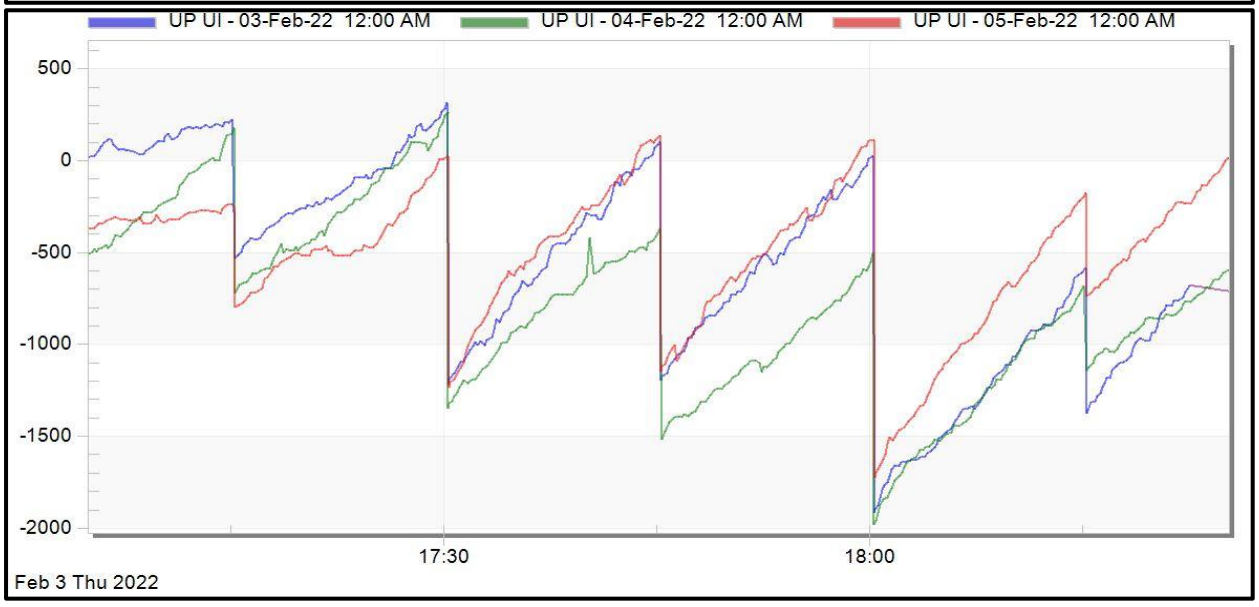
2000MW especially at 1800hrs leading to continuous spike in frequency. As has been deliberated in previous many OCC meetings, UP is once again requested to explore option of load staggering, minimise sudden load changeovers at hourly boundaries, utilize ramp from intrastate generators and ensure that RGMO/FGMO of generators under their control areas are in service and are responding as per frequency changes.

Members may like to discuss.









Members may like to discuss.

18. 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.

In 191 OCC meeting,

- Punjab SLDC assured that they will ensure sharing of data from the next 2-3 days. NRLDC representative expressed concern and asked Punjab SLDC representative to immediately take necessary actions as the same is pending since long.
- Delhi SLDC stated mail/communication has not been received in this regard. NRLDC representative presented the mail details wherein mails were shared with all utilities in Dec 2021 as well as Jan 2022. NRLDC representative expressed concern and asked Delhi SLDC representative to 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.

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.

Members may like to discuss.

Uploading of Daily Power Supply Position Report of J&K(UT) on NRLDC Reporting Software:

Regulation 5.5.1(b) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, regarding the preparation of periodic reports by NLDC/RLDC/SLDC states that

"A daily report covering the performance of the regional grid shall be prepared by each RLDC based on the inputs received from SLDCs/Users and shall be put on its website. This report shall also cover wind and solar power generation and injection into the grid."

In compliance with the above regulation, a daily power supply position report for Northern Region is being prepared by the Northern Regional Load Despatch Centre based on the inputs received from SLDCs/ Users of the Northern Region.

Presently the Power supply position in respect of J&K (UT) is received through email with a delay of 24 hrs to 72 hrs. Due to receipt of delayed input from J&K(UT), Northern Region Power supply position report is prepared considering ISTS end SCADA data of J&K(UT) and Ladakh (UT) as this report is time critical, and required to be submitted to NLDC by 06:00 Hrs every day. However, at a later date when the power supply position is actually received from J&K(UT) it is seen that there is a significant difference between the power supply position report prepared by NRLDC and J&K (UT)(**Annexure-B.I**). This issue was also communicated with SLDC Jammu vide NRLDC letter dated 20.10.2021 (**Annexure-B.II**)

Power supply position report is one of the key reports of the region and sanity and integrity of its data is of paramount importance. The report is also scrutinized by Hon'ble Minister of Power and New & Renewable Energy and based on it, many

other reports are prepared and shared with MoP, CEA, NLDC and other power sector utilities.

In view of the above, it is requested to kindly ensure that the daily power supply report in respect of J&K(UT) and Ladakh (UT) is positively submitted to the web-based reporting software by 03:00 AM on daily basis.

Members may like to discuss.

19. MVAR support from generators

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

Reactive power response in respect of MVAr vs Voltage for **past 30 days (09.01.2022 - 08.02.2022)** as per NRLDC SCADA data is described below. Based on available data, it is observed that there are margins available as per capability curves for most of the generating stations. In addition, telemetry (sign and magnitude of MVAR) of various state generating station is yet to be corrected.

S.No.	Station	Unit No.	Capacity	Geographical location	MVAR capacity as per capability curve	MVAR performance (-) Absorption (+) Generation	Voltage absorption above (in KV)
1	Dadri NTPC	1	490	Delhi-NCR	-147 to 294	-150 to 50	410
		2	490		-147 to 294	-150 to 50	410
2	Singrauli NTPC	1	200	UP	-60 to 120	-20 to 10	406
		2	200		-60 to 120	-25 to 10	404
		3	200		-60 to 120	-10 to 25	408
		4	200		-60 to 120	-40 to 10	402
		5	200		-60 to 120	-20 to 0	402
		6	500		-150 to 300	-80 to 0	400
		7	500		-150 to 300	-60 to 0	400
3	Rihand NTPC	1	500	UP	-150 to 300	-90 to 20	404
		2	500		-150 to 300	-85 to 20	403
		3	500		-150 to 300	-150 to -20	400
		4	500		-150 to 300	-80 to 40	406
4	Kalisindh RS	1	600	Rajasthan	-180 to 360	Voltage data issue	
		2	600		-180 to 360		
5	Anpara C UP	1	600	UP	-180 to 360	-100 to 100	765
		2	600		-180 to 360	-100 to 40	765
6	Talwandi Saboo PB	1	660	Punjab	-198 to 396	-200 to -50	410
		2	660		-198 to 396	-200 to -50	410

S.No.	Station	Unit No.	Capacity	Geographical location	MVAR capacity as per capability curve	MVAR performance (-) Absorption (+) Generation	Voltage absorption above (in KV)
		3	660		-198 to 396	-200 to -50	410
7	Kawai RS	1	660	Rajasthan	-198 to 396	-100 to 50	402
		2	660		-198 to 396	-100 to 20	402
8	IGSTPP Jhajjar	1	500	Haryana	-150 to 300	-130 to 30	410
		2	500		-150 to 300	-130 to 30	410
		3	500		-150 to 300	-	-
9	Rajpura (NPL)	1	700	Punjab	-210 to 420	data error (sign reversal) however adequate MVAR absorption	
		2	700		-210 to 420		
10	MGTPS	1	660	Haryana	-198 to 396	-150 to -40	400
		2	660		-198 to 396	-160 to 20	400
11	Bawana	1	216	Delhi-NCR	-64.8 to 129.6	-	-
		2	216		-64.8 to 129.6	-60 to 40	410
		3	216		-64.8 to 129.6	-70 to 0	405
		4	216		-64.8 to 129.6	-	-
		5	253		-75.9 to 151.8	-40 to 60	415
		6	253		-75.9 to 151.8	-40 to 40	410
12	Bara PPGCL	1	660	UP	-198 to 396	-80 to 50	765
		2	660		-198 to 396	-80 to 50	765
		3	660		-198 to 396	-100 to 50	762
13	Lalitpur TPS	1	660	UP	-198 to 396	-20 to 170	775, 785
		2	660		-198 to 396	0 to 150	775, 785
		3	660		-198 to 396	-50 to 180	775, 780
14	Anpara D UP	1	500	UP	-150 to 300	-150 to 30	765
		2	500		-150 to 300	-150 to 30	765
15	Chhabra TPS	1	250	Rajasthan	-75 to 150	-50 to 20	405
		2	250		-75 to 150	-50 to 20	405
		3	250		-75 to 150	-	-
		4	250		-75 to 150	-	-
		5	660		-198 to 396	-70 to 100	410
		6	660		-198 to 396	-70 to 70	410

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

NRLDC has sent communication to IGSTPP Jhajjar, Delhi SLDC (Bawana), UP SLDC (Bara and Lalitpur) to improve their reactive power performance.

In 191st OCC meeting:

- Rajasthan SLDC representative was asked to look into the telemetry issues of Kalisindh TPS. Rajasthan SLDC representative informed that the issue has been attended.
- Delhi SLDC representative stated that they are regularly sending messages and asking CCGT-Bawana to absorb MVAr as per its capability curve, however they are not absorbing sufficient MVAr. SLDC representative stated that they shall take up the issue again with Bawana and share the actions taken by plant with NRLDC/NRPC. NRLDC asked Delhi SLDC to take up the matter on priority with CCGT-Bawana.
- Lalitpur representative stated that new bus reactor is expected to be commissioned shortly which would reduce the MVAr requirement from machine. MVAr absorption by plant has to be limited due to the limitation of increased voltage at 11kV side. It was informed that bus reactor is expected to be charged in first week of Feb 2022.
- Other generating stations such as Kalisindh TPS, Chhabra TPS, Rajpura TPS, Talwandi Saboo were requested to resolve issues related to telemetry and make sure that correct MVAR data from all units are available at RLDC/ SLDC and MVAr is absorbed is as per grid requirement and capability curve of machine.

Above generators/ SLDCs are requested to provide update on the respective issue.

All generating stations are requested to resolve any issues related to telemetry and make sure that MVAr absorption is as per grid requirement and capability curve of machine. Generating stations need to make sure that the AVR settings and GT tap positions are optimized to achieve the reactive power performance as per grid requirements. It is also requested to share these details with NRLDC.

Members may like to discuss.

As already discussed in TCC/NRPC meeting, subgroup was formed at NRPC level to look after RE integration to take up the issues at their level. Major areas for discussion include:

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

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

In 189th OCC meeting, it was discussed that a pilot project has been carried out by SRLDC/SRPC and a report is being prepared in this regard and the same is expected in a week's time. SE (O), NRPC stated that sub group meeting would be called in November 2021 before next OCC meeting to discuss RE related issues and the report prepared by SRPC/SRLDC shall also be referred.

In 190th OCC meeting, it was informed that SRLDC has issued the report which is available @ *https://srldc.in/UploadFiles/NewsAndUpdate/Draft%20Report%20on%20Night%20Mode%20Operation%20(Trial)%20of%20PV%20Inverters.pdf*. The key points from SRLDC report were presented in the meeting. NRLDC and NRPC representatives stated that separate meeting may be called with solar ISGS by sub-group formed at NRPC level so that such capability of NR plants may be discussed and accordingly further course of action may be decided. ***In 191 OCC meeting, it was decided that the meeting may be called by NRLDC in Feb 2022. Accordingly, it is proposed to carry out the meeting on 23.02.2022 or 24.02.2022.***

Members may like to discuss.

20. TTC/ATC of state control areas for winter 2021-22 and Draft GNA regulations notified by CERC

Hon'ble CERC had notified draft GNA Regulations and posted on CERC website on 16th Dec 2021 for stakeholders comments. These draft regulations aim to move towards a more market friendly approach in open access rather than undertaking construction of transmission system only if there is firm users requisition such construction. Under this mechanism, assessment of ATC/TTC of state control area becomes all the more important.

18.1 (C) GNA for a State including intra-State entity(ies) as per clause (b) of this Regulation shall be deemed to have been granted to STU of that State on behalf of such intra-State entities and shall remain valid until relinquished in accordance with these regulations.

CERC (Measures to relieve congestion in real-time operation) Regulations, 2009 regulation clause 3(2) states that:

"*TTC, ATC, and TRM along with the details of basis of calculations, including assumptions if any, shall be put up on the website of NLDC and RLDC at least three months in advance. The specific constraints indicated by the study would also be put on the website."*

It is observed that some states are still not declaring the TTA/ATC for the import and export of power. Further, there are some states whose ATC is less than the calculated deemed GNA quantum mentioned in the draft regulation. The state wise GNA, LTA and MTOA, ATC figures are attached as **Annexure-B.III.**

OCC may advise all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement. States are also requested to regularly provide update regarding the upcoming transmission elements which would improve import capability of respective state control area.

From last 2-3 OCC meetings, it was discussed that most of the NR states except J&K U/T and Ladakh U/T and Chandigarh are sharing basecase and ATC/TTC assessment with NRLDC. SLDCs are once again requested to go through the tentative ATC/TTC limits for March 2022 (**Annexure-B.IV**) 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.

Punjab

Punjab SLDC is requested to ensure sufficient intrastate generation on bar during winter/ spring months, which would help in providing the required MVAR absorption to limit high voltages during winter months. ***Punjab is 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.
- Commissioning of new 500MVA ICT at Rajpura.
- 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).

As discussed in 191 OCC meeting, 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. At the time of this very high demand, it is easy to understand that maximum internal generation should be available to help in meeting demand safely. However, due to forced outage of generating units especially at Talwandi Saboo generating units, there is major issue in meeting demand in safe and secure manner. In 2021, there were numerous forced outages of Talwandi Saboo units (each 660MW capacity). Even in the lean season during Jan-Feb 2022, there have been numerous outage of Talwandi Saboo units including those due to coal shortage issues.

S.No	Station	Unit No	Capacity MW	Reason(s)	Outage		Revival	
					Date	Time	Date	Time
1	Talwandi Sabo TPS	1	660	ABNORMAL SOUND IN BOILER	07-02-2022	22:00	-	-
2	Talwandi Sabo TPS	1	660	Fuel Shortage Coal Shortage	10-01-2022	20:45	16-01-2022	05:28
3	Talwandi Sabo TPS	2	660	ABNORMAL SOUND IN BOILER	18-01-2022	17:03	22-01-2022	04:36

4	Talwandi Sabo TPS	1	660	ABNORMAL SOUND IN BOILER	28-01-2022	07:33	01-02-2022	14:19
5	Talwandi Sabo TPS	2	660	Coal Shortage	05-02-2022	22:16	08-02-2022	09:15

In 191 OCC meeting, Punjab SLDC was asked to take up the matter on top priority with TSPL and try and ensure maximum generation capacity availability during peak demand season. Punjab SLDC representative stated that the matter has been taken up on priority however problems are still persisting with TSPL units. NRLDC representative stated that the communication from Punjab with TSPL should be shared with NRLDC/NRPC also.

NRLDC representative also highlighted that due to frequent outages of Talwandi Saboo units, frequent ATC/TTC revisions need to be carried out, moreover since the revisions only become effective after some time blocks, it leads to a situation when Punjab faces big challenge in safely meeting the demand without over drawing. To overcome these issues, along with ensuring availability of Talwandi Saboo units, other generating units should also be available along with sufficient fuel stock and it is also essential that Punjab takes necessary steps to enhance their ATC/TTC limits before paddy 2022

Punjab SLDC to provide update.

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.

Alongwith above,

- Healthiness of SPS of Anpara-Unnao complex to be ensured. Mock-testing may be carried out before summer season.
- Shutdown period of 765kV AnparaD-Unnao to be minimized
- Status of 765/400kV Obra-C including underlying network may be furnished.

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 to share latest ATC/TTC assessment with NRLDC and provide update on capacity augmentation/ SPS for constrained ICTs.

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 SLDC to provide update on the implementation of SPS at 400/220kV Mundka and Bamnauli substations and also revival status of 400/220kV Mundka ICTs.

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 to provide update***

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.

Uttarakhand

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

J&K

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

Constraints observed as per real-time:

J&K

- 400/220kV Amargarh ICTs
- High loading of 220kV lines from Wagoora & Sambha**.**

HP

- High loading of 400/220kV Nallagarh ICTs, 220kV Nallagarh-Upernangal D/C and 220kV Hamirpur-Hamirpur D/C

Uttarakhand

- High loading of 400/220kV Kashipur ICTs
- High loading of 220kV Roorkee-Roorkee, CBGanj-Pantanagar

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
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 March onwards, demand of most of the NR states starts increasing, it is requested that the revised ATC/TTC limits for summer2021 along with anticipated generation scenario may be shared with NRLDC well in advance**.**

Plot suggesting loading above n-1 contingency limit and ATC are attached as **Annexure-B.V**. 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.

21. Grid operation related issues

(i) Generation assessment for opening of bus coupler at Dadri TPS

400 kV bus at Dadri is split into two portions in order to contain the short circuit level. Split bus operation is not the desirable solution. It reduces reliability of the power station as a whole and also causes heavy loading of the connected lines & ICTs on one section and skewed power distribution. In addition, the section with lesser short circuit level experiences high voltage during off-peak periods, with no means for voltage control.

On one section (I):

• Thermal units of stage-I connected via 3*500MVA ICTs

• 400kV lines such as Panipat ckt1 and ckt 2, Muradnagar New and Harshvihar ckt1

On other section (II):

• Gas Plant units connected via 2*500MVA ICTs and thermal units of stage-II

• HVDC interconnectors

• 400kV lines such as Mandola ckt 1 and 2 having series line reactors at Mandola end

• 400kV lines such as Kaithal, Gr. Noida, Maharani bagh, Harshvihar ckt2

As per simulation studies carried out on All India basecase for summer 2022 scenario, it is observed that:

	Generation (MW)				3-phase Fault level (kA)		
Case	Dadri Stg.I	Dadri Stg.II	Dadri gas	Total Dadri generation	Dadri Section-I	Dadri Section-II	Dadri w/o bus-split
1	0	0	0	0	15.05	31.06	36.35
2	0	460	0	460	15.32	34.84	39.6
3	0	920	0	920	15.57	38.11	42.86
4	380	0	0	380	17.41	32.25	38.72
5	380	0	200	580	17.58	33.97	40.45
6	760	0	0	760	19.27	32.66	40.64
7	0	0	200	200	15.21	33.32	38.07
8	0	0	600	600	15.43	35.74	40.49

9	760	920	800	2480	19.82	42.89	50.77

Almost similar results were observed in All India March 2022 peak basecase. Following are major observations:

- Since section-II is connected with Dadri gas, Dadri Stage-II and HVDC, it has much higher fault level than section-I.
- Generally when total generation at Dadri is greater than 500-600MW, 3-phase fault current is more than 40kA.
- To ensure limited fault current levels, it is suggested that bus sectionaliser at Dadri TPS may be opened when generation at Dadri generating station (including Stg. I, Stg.II and Gas) is higher than 500MW.
- Upon discussion and agreement in OCC meeting, same would be shared with NRLDC and Dadri control rooms and followed in real-time.

Moreover, there is urgent need for commissioning of series reactors planned in Delhi/NCR to limit the fault current in Delhi ring. POWERGRID to provide update.

Members may like to discuss

(ii) Outage of 400kV Samba-Amargarh beyond approved period

The shutdown of 400 kv Amargarh-Samba ckt 1&2 was approved from 20.01.2022 to 31.01.2022 for Urgent SD to bypass tower #286 along with dismantling of tower #286 to safeguard the transmission line from landslide conditions subsequent to uninformed excessive hill cutting done by BRO. As has been stressed previously also, Jammu Kashmir is experiencing peak demand due to winter season (~3000MW) and 400 Amargarh-Samba D/C is vital line for supplying power to JK Valley.

INDIGRID needs to make sure that in future shutdown are applied in NRPC portal within the approved timelines as per NRPC approved outage procedure because some time is required by NRLDC also to carry out studies and assess the possibility of facilitating shutdowns in real-time. Moreover, the outage of the line was extended beyond the approved timelines which suggests man-days required for execution for work were not adequately assessed by INDIGRID. Such actions need to be avoided in future and if required additional gangs to be deployed to make sure that works are executed within approved timelines.

Members may please discuss.

(iii) Ensuring PLCC protection in 220kV intrastate lines

NRLDC is in receipt of the following first time charging applications:

1. ID-1118318: LILO of 220 kV Agra (PG)-Firozabad line at 220 kV Tundla (UP)
2. ID-1118405: LILO of 220 kV Gorakhpur (PG)-Bansi line at 220 kV Dulhipar (UP)
3. ID-1118431: LILO of 220 kV Sohawal (PG)-New Tanda line at 220 kV Ayodhya (UP)
4. ID-1118443: LILO of 220 kV Shahjahanpur (UP)-Sitapur (UP) line at 220 kV Shahjahanpur (PG)

From the documents submitted, it is observed that PLCC/OPGW communication work is not commissioned in the above elements. In this regard, it is to be mentioned that as per Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010, Section 43 (4) (e) quoted below, complete commissioning of PLCC equipment is to be done before charging of the transmission lines:

"Power line carrier communication (PLCC) equipment complete for speech transmission, line protection, and data channels shall be provided on each transmission line of voltage rating 132kV and higher..."

In view of the same, UPPTCL to confirm the commissioning of PLCC/OPGW communication work for the above mentioned elements before facilitating first time charging.

(iv) 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.VI**).

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.

(v) 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 Powermaps, PSSebasecase, 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.

Constituents are requested to submit the Annexures- B6, B7 & B8 (formats enclosed) duly signed by the incharge on a letter head before charging of elements in following cases:

Annexure B6: Undertaking / Self Certification by Owner under Regulation 43(7) of CEA (Measures relating to safety and electric supply) regulations 2010 **For Replacement of Electrical installations due to Failure**.

Annexure B7: Undertaking / Self Certification by Owner under Regulation 43(7) of CEA (Measures relating to safety and electric supply) regulations 2010 **For Diversion of TL / Tower Height modification.**

Annexure B8: Undertaking / Self Certification by Owner under Regulation 43(7) of CEA (Measures relating to safety and electric supply) regulations 2010 **For Anti Theft Charging.**

The above Annexures (**Annexure-B.VII**) are to be submitted along with the CEA RIO safety clearance certificate.

Members may like to discuss.

(vi) SPS Implementation at Bhadla (PG)

The SPS logic decided in the 45th TCC meeting and approved in the 48th NRPC meeting was The SPS logic decided in the 45th TCC meeting and approved in the 48th NRPC meeting was explained to OCC members in 181 OCC meeting. POWERGRID representative had intimated that QR for the SPS tender has already been finalized and NIT may be floated within next two weeks.

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

183 OCC: QR approved, tender documents being prepared

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

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

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

190 OCC meeting, POWERGRID representative stated that two bids have been received and price bid will be opened shortly and the contract is likely to be awarded in January 2021.

191 OCC meeting, POWERGRID representative stated that the works are going on as per schedule and contract is likely to be awarded in January 2021.

POWERGRID to provide update on the latest status. Moreover, status of STATCOM to be commissioned in Bhadla/Bikaner/Fatehgarh complex may also be provided.

(vii) 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.

SLDCs are requested to provide update on the agenda point.

Members may please discuss.

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

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

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	765 KV Anpara_D-Unnao (UP) Ckt-1	6	UP
2	765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1	3	UP

3	400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1	4	POWERGRID/ARP1PL
4	400 KV Muradnagar_2-Mathura (UP) Ckt-1	4	UP
5	400 KV Gorakhpur(PG)-Gorakhpur(UP) (PG) Ckt-1	4	POWERGRID/UP
6	400 KV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1	4	Rajasthan
7	400 KV Alaknanda GVK(UPC)-Srinagar(UK) (UK) Ckt-1	3	Uttarakhand/UP
8	400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-1	3	NTPC/Delhi
9	400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-2	3	NTPC/Delhi
10	400 KV Obra_B-Sultanpur (UP) Ckt-1	3	UP
11	400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-2	3	Rajasthan
12	220 KV Bairasiul(NH)-Pong(BB) (PG) Ckt-1	5	NHPC/BBMB
13	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	5	NPCIL/Rajasthan

The complete details are attached at **Annexure-B.VIII.** Frequent outages of such elements affect the reliability and security of the grid. Hence, utilities are requested to analyse the root cause of the trippings and share the remedial measures taken/being taken in this respect.

Members may like to discuss.

23. Multiple element tripping events in Northern region in the month of Jan'22:

A total of **20** grid events occurred in the month of Jan'22 of which **08** 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.IX.**

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 **1480ms** in the event of multiple element tripping at 400kV Kota(PG) on 06-Jan-22 at 01:35hrs.)

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **4** events out of **20** grid events occurred in the month. In 9 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.

24. Details of tripping of Inter-Regional lines from Northern Region for Jan'22:

A total of 5 inter-regional lines tripping occurred in the month of Jan'22. The list is attached at **Annexure-B.X.** 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.

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

The status of receipt of DR/EL and tripping report of utilities for the month of Jan 2022 is attached at **Annexure-B.XI**. It is to be noted that as per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement. Also, it is observed that reporting status has been improved from POWERGRID, UP, Haryana and Himachal Pradesh in Jan, 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.

26. Frequency response characteristic:

One FRC based event occurred in the month of **Jan-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	23-Jan-22	14:16hrs	On 23rd January 2022 at 14:16 hrs, as reported, multiple element tripping occurred at 400/220kV bassi(Raj) on three phase fault. At the same time, tripping of 765kV Bikaner-Khetri ckt-1&2, 765kV Bhadla2-Fatehgarh2 ckt-1 on over voltage protection operation and	50.05	50.03	-0.02

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	End Frequency (in Hz)	*Δf*
			loss of approx. 1110MW solar generation (960MW at Fatehgarh2(PG) & 250MW at Bhadla(PG)) is observed. Hence, generation loss of 1110 MW has been considered for FRC calculation.			
2	30-Jan-22	11:27hrs	On 30th January 2022 at 11:27 hrs, as reported, event of multiple element tripping occurred at 765/400/220kV Fatehgarh2(PG) due to over voltage. Solar generation loss of around 2038MW (connected at Fatehgarh2(PG)) is observed. Hence, generation loss of 2038 MW has been considered for FRC calculation.	50.02	49.91	-0.11

Status of Data received till date:

Status of Field Data received of FRC of Grid event occurred at Fatehgarh2(PG) on 23.01.2022			
Data Received from		Data Not Received from	
UP	Singrauli NTPC	HP	Rihand NTPC
	Kawai(ADANI)	UK	APCPL Jhajjar
	Dadri TPS	J&K	Others
	Rosa(Reliance)	Punjab	
	Koteshwar HEP	BBMB	
	Unchahar TPS	Rajasthan	
		Delhi	
		Haryana	

Status of Field Data received of FRC of Grid event occurred at Fatehgarh2(PG) on 30.01.2022			
Data Received from		Data Not Received from	
UP	Singrauli NTPC	HP	Rihand NTPC
	Kawai(ADANI)	UK	APCPL Jhajjar
	Dadri TPS	J&K	Others
	Rosa(Reliance)	Punjab	
	Koteshwar HEP	BBMB	
		Rajasthan	
		Delhi	
		Haryana	

PFR as per generators field data

Primary Frequency Response by Generators during Grid Event at Fatehgarh2(PG) on 23th Jan 2022:

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
1.	**Unchahar Unit-1**	60.1%	Unsatisfactory PFR Response
2	**Unchahar Unit-2**	38.94%	Unsatisfactory PFR Response
3	**Unchahar Unit-3**	72.28%	Satisfactory PFR Response
4	**Unchahar Unit-4**	27.92%	Unsatisfactory PFR Response
5	**Unchahar Unit-5**	22.40%	Unsatisfactory PFR Response
6	**Unchahar Unit-6**	145.75%	Satisfactory PFR Response
7	**Dadri TPS Unit-5**	-1.79%	As per NRLDC SCADA data, PFR response (106%) was satisfactory during the event. Field frequency data is not correct and response seems poor as per their data. Dadri TPS may check the data.
8	**Dadri TPS Unit-6**	-2.76%	
9	**Rosa Unit-1**	2.99%	Unsatisfactory PFR Response
10	**Rosa Unit-2**	15.13%	
11	**Rosa Unit-3**	10.04%	
12	**Rosa Unit-4**	10.71%	

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
13	Kawai Unit-1	428.37%	Satisfactory PFR Response
14	Kawai Unit-2	-88.16%	Unsatisfactory PFR Response
15	Singrauli Unit-6	133.79%	Satisfactory PFR Response
16	Anapara C Unit-1	-13.15%	Unsatisfactory PFR Response (As per details shared by Anpara C TPS, early die out of response is observed)
17	Anapara C Unit-2	-11.40%	
18	Harduaganj Unit-8	543.41%	Satisfactory PFR Response
19	Harduaganj Unit-9	500.35%	
20	Lalitpur Unit-1	2.27%	Unsatisfactory PFR Response
21	Lalitpur Unit-2	84.76%	Satisfactory PFR Response

Primary Frequency Response by Generators during Grid Event at Fatehgarh2(PG) on 30th Jan 2022:

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
1.	Kawai Unit-1	95.17%	Satisfactory PFR Response
2	Kawai Unit-2	-3.53%	Unsatisfactory PFR Response
3	Singrauli Unit-6	60.16%	Unsatisfactory PFR Response
4	Singrauli Unit-7	43.76%	Unsatisfactory PFR Response
5	Rosa Unit-1	-8.14%	Unsatisfactory PFR Response
6	Rosa Unit-2	-4.09%	
7	Rosa Unit-3	0%	
8	Rosa Unit-4	2.37%	
9	Dadri TPS Unit-5	56.94%	Unsatisfactory PFR Response
10	Lalitpur Unit-1	40.50%	Unsatisfactory PFR Response
11	Lalitpur Unit-2	3.62%	

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.

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

In last 11 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)

It may be noted that Tehri HEP conducted PSS tuning/ Step response test of their units and submitted report. 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 191st OCC meeting, Members were requested to update about their future plan for PSS tuning as there is no 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.

28. Mock black start exercises in NR:

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

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

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

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

Hydro Power Stations:

Date	Revised Schedule date	Name of stations	Comment and Remarks
26-Nov-21		* Uri-I, II HEP, Lower Jhelum HEP, Pampore GT’s, Upper Sindh and Kishanganga.	Yet to be carried out. No information has been received from J&K about URI-I, Uri-II. Integration of Mock black start exercise in SCADA system at Kishanganga power station yet to be done by BHEL

Date	Revised Schedule date	Name of stations	Comment and Remarks
			(OEM). BHEL is being pursued for its expedition. Hence the Mock exercise at Kishanganga shall be possible only after completion of above by OEM.
01-Dec-21	28-Dec-21	* Dhauliganga	Conducted successfully except a heavy jerk at Dhauliganga HEP is observed during synchronization at Bareilly end.
04-Dec-21	23-Dec-21	Bairasiul	To be carried out. As requested by HP SLDC.
08-Dec-21		*Sewa-2	Mock Black start exercise is not possible as Power Station is under complete shutdown due to HRT repair works..
10-Dec-21	During March 2022	* N. Jhakri and Rampur	Yet to be carried out. As requested by Jhakri HEP & HP SLDC.
15-Dec-21	29-Dec-21	Karcham and Baspa	Exercise unsuccessful due to tripping of Wangtoo-kala Amb line during island build up.
17-Dec-21	After 15 Jan 2022.	*Budhil	Yet to be carried out. As discussed with Budhil HEP the exercise is planned to be carried out after 15th January, 2022.
22-Dec-21		Parbati-3 and Sainj	Yet to be carried out.
24-Dec-21		*Salal	Yet to be carried out. No information has been received from J&K for load management.
29-Dec-21	During March 2022	*Chamera-3	As requested by NHPC.
31-Dec-21	19th January, 2022	Koteshwar	As requested by Koteshwar HEP.
05-Jan-22	After 25 Jan 2022.	Chamera-1 and Chamera-2	Considering the proposed complete s/d of CH-1 PS for HRT inspection w.e.f. 01st Dec. 2021, the mock black start exercise may be postponed and same may be scheduled after 25 Jan 2022.
08-Jan-22	Third week of January, 2022	Malana-2, AD Hydro and Phozal	Yet to be carried out.
12-Jan-22		Tehri	Exercise carried out successfully.
15-Jan-22	After 14 Feb 2022	Koldam	Yet to be carried out. As discussed with Punjab SLDC the exercise is planned to be carried out after 14th February, 2022 (due to election in Punjab).

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

Mock Black start procedure circulated during last exercise/ previous year may be used. The unit to be selected for black start, may preferably be different from the one

tested during last year exercise. Also **Constituents are requested to adhere to the finalized schedule of mock exercises during the current season**.

Gas Power Stations:

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

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

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

S. NO.	Utility	Hydro Power Station	Installed Capacity(MW)
1	J&K	Baglihar	3x150
2		Baglihar stage-2	3x150
3		Lower Jhelum	3x35
4		Upper Sindh	2x11+3x35
5		Larji	3x42
6		Bhabha	3x40
7		Malana -I	2x43
8		Baspa	3x100
9	Punjab	Anandpur Sahib	4x33.5
10		Ranjit Sagar	4x150
11	Rajasthan	Mahi-I&II	2x25+2x45
12		Rana Pratap Sagar	4x43
13		Jawahar Sagar	3x33
14		Gandhi Sagar	5x23
15		Dholpur GPS	3x110
16		Ramgarh GPS	1x35.5+2x37.5+1x110
17	UP	Rihand	6x50
18		Obra	3x33
19		Vishnuprayag	4x100
20 21		Srinagar (Alaknanda)	4x82.5
	Uttarakhand	Gamma Infra	2x76+1x73
22		Shravanti	6x75
23		Ramganga	3x66
24		Chibro	4x60
25		Khodri	4x30
26		Chilla	4x36
27		Maneri Bhali-I&II	3x30+4x76
28	Delhi	IP Extn GTs	6x30+3x30
29		Pragati GPS	2x104.6+1x121.2
30		Rithala	3x36

31	Haryana	Faridabad GPS	2x137.75+1x156.07

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

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

Members may please discuss.

29. Revision of document for System Restoration Procedure for Northern Region:

Reactive Power Management document for Northern region has been revised on 31st Jan 2022 & updated document link is as below:

https://nrldc.in/download/system-restoration-nr-2022/?wpdmdl=9968

NRLDC letter in this regard is attached as **Annexure-B.XII**.

Document is password protected and password was already informed to all the NR constituents through letter dated 31st Jan 2022.

All the NR constituent may please go through the document and provide the feedback, suggestion if any.

All the state SLDCs are also requested to kindly prepare the reactive power document for its own control area.

Members may please discuss.

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Email **Reeturaj Pandey**

RE: tuned the results _NR _Cap Study

From : Dr MANOHAR SINGH <manoharsingh@cpri.in> Fri, Feb 04, 2022 03:12 PM
Subject : RE: tuned the results _NR _Cap Study
To : Reeturaj Pandey <pandeyr.cea@gov.in>

Dear Sir,

We re-looked into comments received from NRLDC. We are experiencing that present compensated file is now highly sensitive and too much tuning over it is resulting in re-distribution of reactive power among the local pool of central generating units in HP and JK.

However, we attempted further tuning, which has some minor reflection on connected state generators in general without any much change in identified Capacitors.

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.

The units wise Comment as under:

1. Himachal Pradesh: Baspa, jhakri,koldam,Karcham: we tuned reactive power at Jhakari, Koldam., Bapsa close to Base case file and it has resulted in more absorption at Karcham. Absorption at Karcham is 127 MVAr which is well within Capability of Generating Units at Karcham Power House.

2. Jammu & Kashmir: Baglihar, Salal, Uri-I,Uri-II, Dulhasti: In Provided Base case file the reactive limits are kept at Zero and it is found that voltage URI-1, Uri-II, Dhulhasthi, AMARGARH , **BAGLIHAR-2 & BAGLIHAR-4 etc** is higher than IEGC Grid Code. Attempts are made to bring down the voltage within IEGC grid code by relaxing the reactive power limit of these machines in JK . This resulted in absorption of reactive power at these machines which is well within Capability of Generating Units. (Since there are no reactors to control over voltage)
3. ISGS: Dadri-C and Dadri NCR these machines are tuned close to Base case .
4. The tuned file has voltage within IEGC limits and machines reactive power support is not utilized for voltage control in state utility network. Surplus reactive power is absorbed by a few machines within their units wise capability.
5. The compensation at sensitive mode in state utility at 132/66 buses will result in voltage profile improvement and this may be above than 1.01 p. u (within IEGC) due to redistribution of reactive power flow in network.

The tuned result for above machines are listed in attachment.

I hope the above details response will be helpful to take a call over preparation of final report.

Best regards
Manohar Singh

Follow up issues from previous OCC meetings

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 — Mar-2021 ◎ J&K and LADAKH — Not Available ◎ PUNJAB — Aug-2021 ◎ RAJASTHAN — Dec-2021 ◎ UP — Nov-2021 ◎ UTTARAKHAND — Jan-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 — Dec-2021 ◎ 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.

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	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 • 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 • LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG) – under commissioning	UPPTCL to update the status.
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 • 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) • 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 • 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line. • 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	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. • 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	• HPSEBL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s • 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. • 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 • LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	HVPNL to update the status.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Remarks
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 • 220kV D/C for Sector78, Faridabad	HVPNL to update the status.
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 • Sonepat - HSIISC Rai 220kV D/c line	HVPNL to update the status.
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)	RVPNL to update the status.
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	HVPNL to update the status.
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 • Panchkula – Sector-32 220kV D/c line • Panchkula – Raiwali 220kV D/c line • 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 • 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 • Sohawal - New Tanda 220kV D/c line • 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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Remarks
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
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.

FGD Status

Updated status of FGD related data submission

NTPC (30.09.2021)
MEJA Stage-I
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (20.12.2021)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (20.12.2021)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (09.12.2021)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Lalitpur Power Gen. Co. Ltd. (22.10.2021)
Lalitpur TPS
Lanco Anpara Power Ltd. (22.10.2021)
ANPARA-C TPS

HGPCL (17.12.2021)
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS

Adani Power Ltd. (28.10.2021)
KAWAI TPS

Rosa Power Supply Company (22.10.2021)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (03.01.2022)
Prayagraj TPP
APCPL (30.09.2021)
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: 31-08-2020), KAWAI TPS U#2 (Target: 30-06-2020)
APCPL	INDIRA GANDHI STPP U#1 (Target: 31-12-2021), INDIRA GANDHI STPP U#2 (Target: 31-03-2022), INDIRA GANDHI STPP U#3 (Target: 30-06-2022)
GVK Power Ltd.	GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020)
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: 28-02-2022), RIHAND STPS U#2 (Target: 31-12-2021), RIHAND STPS U#3 (Target: 31-12-2023), RIHAND STPS U#4 (Target: 31-12-2023), RIHAND STPS U#5 (Target: 30-06-2023), RIHAND STPS U#6 (Target: 30-06-2023), SINGRAULI STPS U#1 (Target: 31-03-2023), SINGRAULI STPS U#2 (Target: 31-03-2023), SINGRAULI STPS U#3 (Target: 31-03-2023), SINGRAULI STPS U#4 (Target: 31-03-2023), SINGRAULI STPS U#5 (Target: 31-03-2023), SINGRAULI STPS U#6 (Target: 31-01-2023), SINGRAULI STPS U#7 (Target: 31-01-2023), UNCHAHAR TPS U#1 (Target: 30-09-2023), UNCHAHAR TPS U#2 (Target: 30-09-2023), UNCHAHAR TPS U#3 (Target: 31-12-2023), UNCHAHAR TPS U#4 (Target: 31-12-2023), UNCHAHAR TPS U#5 (Target: 31-12-2023), UNCHAHAR TPS U#6 (Target: 30-09-2022), 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: 01-01-2024), LALITPUR TPS U#2 (Target: 01-01-2024), LALITPUR TPS U#3 (Target: 01-01-2024)
Lanco Anpara Power Ltd.	ANPARA C TPS U#1 (Target: 31-12-2023), ANPARA C TPS U#2 (Target: 31-12-2023)
Prayagraj Power Generation Company Ltd.	PRAYAGRAJ TPP U#1 (Target: 31-12-2024), PRAYAGRAJ TPP U#2 (Target: 31-12-2024), PRAYAGRAJ TPP U#3 (Target: 31-12-2024)
PSPCL	GH TPS (LEH.MOH.) U#1 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#2 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#3 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#4 (Target: 31-12-2024), GGSSTP, Ropar U#3 (Target: 31-03-2022), GGSSTP, Ropar U#4 (Target: 31-05-2022), GGSSTP, Ropar U#5 (Target: 31-07-2022), GGSSTP, Ropar U#6 (Target: 30-09-2022)

Rosa Power Supply Company	ROSA TPP Ph-I U#1 (Target: 31-12-2024), ROSA TPP Ph-I U#2 (Target: 31-12-2024), ROSA TPP Ph-I U#3 (Target: 31-10-2024), ROSA TPP Ph-I U#4 (Target: 31-10-2024)
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: 31-10-2022), ANPARA TPS U#2 (Target: 31-08-2022), ANPARA TPS U#3 (Target: 30-06-2022), ANPARA TPS U#4 (Target: 30-04-2022), ANPARA TPS U#5 (Target: 28-02-2022), ANPARA TPS U#6 (Target: 30-06-2021), ANPARA TPS U#7 (Target: 30-04-2021), HARDUAGANJ TPS U#8 (Target: 31-12-2021), HARDUAGANJ TPS U#9 (Target: 31-12-2021), OBRA TPS U#9 (Target: 31-08-2022), OBRA TPS U#10 (Target: 31-10-2022), OBRA TPS U#11 (Target: 31-12-2022), OBRA TPS U#12 (Target: 30-06-2022), OBRA TPS U#13 (Target: 30-04-2022), PARICHHA TPS U#3 (Target: 30-04-2022), PARICHHA TPS U#4 (Target: 30-04-2022), PARICHHA TPS U#5 (Target: 28-02-2022), PARICHHA TPS U#6 (Target: 31-12-2021)

Annexure-A-II

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	Yes	Yes	List of officials in-charge and relays in Delhi IS submitted by DTL on 21.12.2021.
2	NAPS IS	UP	Implemented	Yes	Yes	Yes	-
3	RAPS IS	Rajasthan	Implemented	Yes	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 sent the request to CPRI vide letter dtd 09.11.2021 to provide the techno-commercial offer for stability study and hardware requirement of Islanding Schemes.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Newly Proposed	UP has sent the request to CPRI vide letter dtd 09.11.2021 to provide the techno-commercial offer for stability study and hardware requirement of Islanding Schemes.		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Newly Proposed	NRPC Sectt. has forwarded the scheme to NRLDC for examination on 26.10.2021	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	-		-	-	-	-	-	-	-	-	-	-
8	Jammu-Salal IS	J &K	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
9	Suratgarh IS	Rajasthan	Under Discussion	NRPC Sectt. has forwarded the scheme to NRLDC for examination on 26.10.2021	RVPN will propose to avail PSDF funding	-		-	-	-	-	-	-	-	-
10	Chamba-Chamera IS	HP	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
11	Kangra-Chamba-Bairasuil IS	HP	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
12	Kullu-Dehar IS	HP	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
13	Butari-Jamsher-Verpal IS	Punjab	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
14	Kargil-Ladakh IS	Ladakh	Under Discussion	-		-	-	-	-	-	-	-	-	-	-

Annexure-A.III

उत्तर प्रदेश राज्य भार प्रेषण केन्द्र
उ0प्र0पॉवर ट्रांसमिशन कारपोरेशन लि0
(उत्तर प्रदेश सरकार का उपक्रम)
यू0पी0एस0एल0डी0सी0 परिसर, विभूति खण्ड–II
गोमती नगर, लखनऊ–226010
दूरभाष:
ई–मेल : cepso@upsldc.org

U.P. State Load Despatch Centre
U.P. Power Transmission Corporation Ltd.
(A U.P. Govt. Undertaking)
UPSLDC Complex, Vibhuti Khand – II
Gomti Nagar, Lucknow- 226010
Phone:
E-mail: cepso@upsldc.org

NRPC Diary सं./No. 107 दिनांक/Date 2/2/2022

No: - /CE(PSO)/SE(R&A)/EE-II/Overloading Dated: - 2022

Director (Operation),

UPPTCL, 11th Floor, Shakti Bhawan Extn.,

Lucknow.

Sub: Existing Transmission Constraint in Uttar Pradesh Control Area.

For smooth load despatching of power in Uttar Pradesh power system, reliability and security of the grid plays important role. In above context, you will appreciate that N-1 complaint and congestion free transmission system is always required for smooth grid operation.

List of overloaded 220KV Transmission lines and 400KV Sub-stations with N-1 non-compliant ICTs is mentioned below for your perusal.

Over Loaded 220KV Transmission Lines			
Sr. No	**Name Of Transmission Lines**	**Sr. No**	**Name Of Transmission Lines**
1	220kV Tanda - Basti line	10	220kV Allahabad (PG) - Jhusi line
2	220kV Azamgarh - Jaunpur line	11	220kV Panki - Chibramau line
3	220kV Parichha - Bharthana line	12	220kV Hardoi Road - Sarojini Nagar line
4	220kV Gorakhpur - Gorakhpur (PG) line	13	220kV Raibareilly – Bachrawan line
5	220kV Meerut (PG) - Nehtaur line	14	220kV Raibareilly - Unchahar Ckt. - II & III
6	220kV Shamli - Baghpat (PG) line	15	220KV Gorakhpur-Bansi line
7	220kV Rosa - Shahjahanpur - I & II	16	220KV Allahabad (PG)- Phulpur line
8	220kV Sitapur - BKT line	17	220KV Firozabad-Firozabad(400)line
9	220kV Lucknow (PG) - BKT line		

400KV sub-stations where loading of ICTs is not N-1 compliant		
Sr. No.	**Name of Sub-Station**	**Installed Capacity (MVA)**
1	400kV Lucknow (UP), Sarojini Nagar	2 * 500
2	400 kV Aligarh	500 + 315
3	400kV Gorakhpur (UP)	500 + 315 + 240
4	400kV Mau	3 * 200
5	400kV Sarnath	3 * 315 + 1 * 500
6	400kV Lucknow (PG)	2 * 500
7	400kV Azamgarh	2 * 500
8	400kV Sohawal (PG)	2 * 315
9	400kV Nehtaur	2 * 200
10	400kV Tanda(NTPC)	2 * 315
11	400kV Obra	2*315+1*240(Outage of 315 MVA ICT - I)
12	400kV Muradnagar (Old)	2*315+1*500(Outage of 315 MVA ICT - I)
13	400kV Moradabad	2*500+1*240(Outage of 240 MVA ICT - III)
14	400kV Noida Sector-148	2*500(Outage of 500 MVA ICT - II)

P.T.O

Further, details of power flow, on above transmission lines and ICTs, based on SCADA data available in SLDC control room, is also enclosed for ready reference. However actual power flow on above elements may please be verified from concerned transmission sub-stations of UPPTCL.

It is therefore requested to kindly take necessary action in this matter and instruct the concerned officers to resolve the issues at the earliest for safe secure reliable grid operation of Uttar Pradesh Control Area.

Enclosure: As above

(Emaduddin Khan)
Chief Engineer (PSO)

No: - 193 /CE(PSO)/SE(R&A)/EE-II/Overloading Dated: - 25-01- 2022

Copy forwarded to the following for information and necessary action:

1. Director (SLDC), UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.
2. Director (Commercial & Planning), UPPTCL, 5th Floor Shakti Bhawan, Lucknow.
3. Member Secretary, NRPC, 18 – A, SJSS Marg, Katwaria Sarai, New Delhi, 110016.
4. Executive Director, NRLDC18-A, SJSS Marg, Katwaria Sarai, New Delhi – 110016
5. CE (C&S), UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.
6. Superintending Engineer (System Control), UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.

(Emaduddin Khan)
Chief Engineer (PSO)

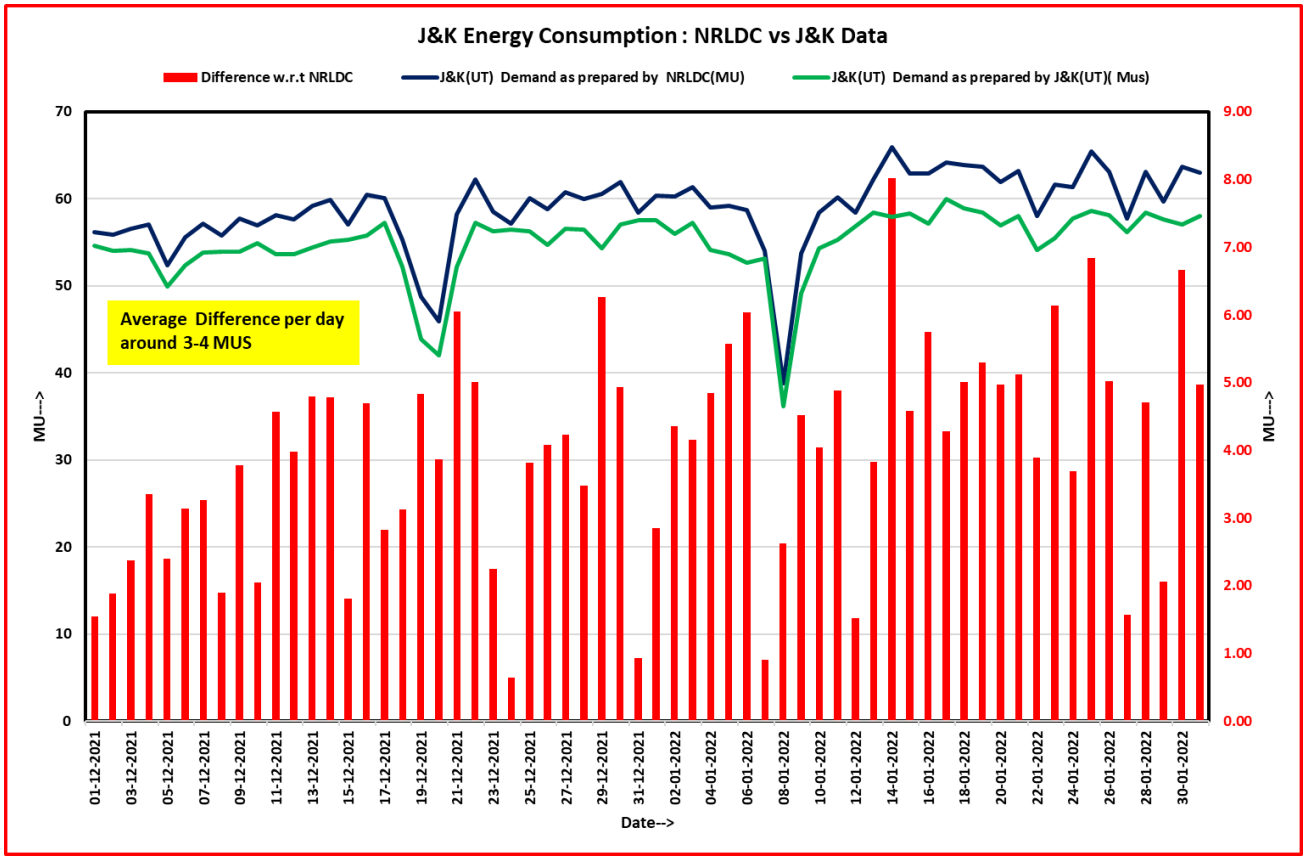
List of 220 KV overloaded Transmission Lines

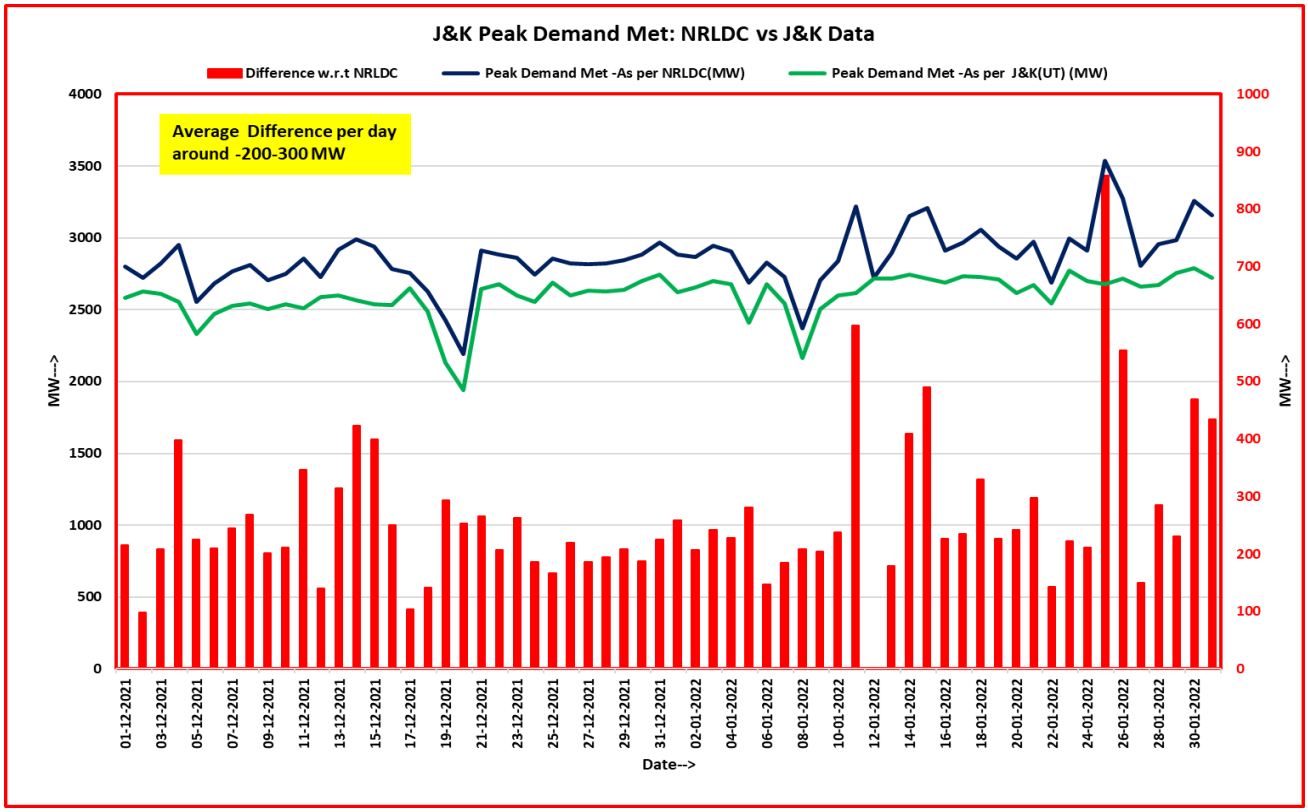
Sr. No.	220 KV Transmission Lines	Loading as on 30.06.2021 at 21:49 hrs(Demand = 24964 MW)	Loading as on 15.07.2021 Demand = 24862 MW Generation : 12262)
1	220kV Tanda - Basti line	201	205
2	220kV Azamgarh - Jaunpur line	243	222
3	220kV Parichha - Bharthana line	226	208
4	220kV Gorakhpur - Gorakhpur (PG) line	274	167
5	220kV Meerut (PG) - Nehtaur line	211	211
6	220kV Shamli - Baghpat (PG) line	196	121
7	220kV Rosa - Shahjahanpur - I	214	257
8	220kV Rosa - Shahjahanpur II	231	255
9	220kV Sitapur - BKT line	223	168
10	220kV Lucknow (PG) - BKT line	251	209
11	220kV Allahabad (PG) - Jhusi line	224	-
12	220kV Panki - Chibramau line	162	159
13	220kV Hardoi Road - Sarojini Nagar line	225	217
14	220kV Raibareilly - Unchahar Ckt. - II	189	203
15	220kV Raibareilly - Unchahar Ckt. - III	191	205
16	220KV Gorakhpur-Bansi line	194	198
17	220KV Allahabad (PG)- Phulpur line	192	170
18	220KV Raibareilly - Bachhrawan line	205	185
19	220KV Firozabad-Firozabad(400)line	214	191

Loading of highly loaded ICTs which are N-1 non-compliance

Sr. no.	Name of 400kV substation	Capacity of ICTs	Loading as on 30.06.2021 at 21:49 hrs (Demand =24964MW)	Loading as on 16 July 2021 Demand(Approx) = 24862 MW Generation(Approx) : 12262
1	Aligarh	500	239	242
		315	198	232
2	Gorakhpur (UP) SPS	500	313	373
		315	198	236
		240	142	169
3	Lucknow (UP) SPS	500	311	301
		500	277	305
4	Sarnath SPS	500	321	337
		315	207	218
		315	210	221
		315	218	230
5	Azamgarh SPS	500	310	311
		500	313	311
6	Mau	200	150	150
		200	150	150
		200	125	125
7	Nehtaur (400)	200	129	117
		200	130	117
8	Lucknow (PG)	500	298	314
		500	318	314
9	Sohawal (PG)	315	228	243
		315	228	243
10	Tanda	315	191	202
		315	185	202
11	Obra	315	Outage of 315 MVA ICT - I	
		315		
		240		
12	Muradnagar(old)	315	Outage of 315 MVA ICT - I	
		315		
		500		
13	Moradabad	500	Outage of 240 MVA ICT - III	
		500		
		240		
14	Noida sec-148	500	Outage of 500 MVA ICT - II	
		500		

Annexure-B.I


J&K Energy Consumption : NRLDC vs J&K Data
Difference w.r.t NRLDC
J&K(UT) Demand as prepared by NRLDC(MU)
J&K(UT) Demand as prepared by J&K(UT)(Mus)
Average Difference per day around 3-4 MUS
MU--->
MU--->
Date-->


J&K Peak Demand Met: NRLDC vs J&K Data
Difference w.r.t NRLDC
Peak Demand Met -As per NRLDC(MW)
Peak Demand Met -As per J&K(UT) (MW)
Average Difference per day around -200-300 MW
MW--->
MW--->
Date-->

Annexure-B.II

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड
(भारत सरकार का उद्यम)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A Govt. of India Enterprise)

उत्तरी क्षेत्रीय भार प्रेशण केन्द्र / NORTHERN REGIONAL LOAD DESPATCH CENTRE
कार्यालय :18-ए, शहीद जीत सिंह सनसनवाल मार्ग, कटवारिया सराय, नई दिल्ली- 110016
OFFICE :18-A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi- 110016
CIN : U40105DL2009GOI188682, Website : www.nrldc.org, www.nrldc.in, Tel.: 011- 26519406, 26523869, Fax : 011- 26852747

Ref. No.: NRLDC /MIS/2020-21/01 दिनांक/Date :**20-10-2021**

To,

Chief Engineer (SLDC)
JKPCL, SLDC Building,
1st Floor Gladni Grid Station,
Narval Bala. Jammu-180 004

Sub: Uploading of Daily Power Supply Position Report of J&K(UT) on NRLDC Reporting Software

Sir,

You are kindly aware that regulation 5.5.1(b) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, regarding preparation of periodic reports by NLDC/RLDC/SLDC states that

"A daily report covering the performance of the regional grid shall be prepared by each RLDC based on the inputs received from SLDCs/Users and shall be put on its website. This report shall also cover wind and solar power generation and injection into the grid."

In compliance to the above regulation, a daily power supply position report for Northern Region is being prepared by the Northern Regional Load Despatch Centre based on the inputs received from SLDCs/ Users of the Northern Region.

Presently, all the SLDCs/Users (except J&K(UT) and Ladakh (UT)) of Northern Region are uploading their inputs (power supply position) on NRLDC reporting software by 3:00 AM for the previous day. However, power supply position in respect of J&K (UT) is received through email with a delay of 24 hrs to 72 hrs. Due to receipt of delayed input from J&K(UT), Northern Region Power supply position report is prepared considering ISTS end SCADA data of J&K(UT) and Ladakh (UT) as this report is time critical, and required to be submitted to NLDC by 06:00 Hrs every day. However, at a later date when the power supply position is actually received from J&K(UT) it is seen that there is significant difference between the power supply position report prepared by NRLDC and J&K (UT). Power supply position report is one of the key reports of the region and sanity and integrity of its data is of paramount importance. The report is also scrutinised by Hon'ble MOSP and based on it, many other reports are prepared and shared with MoP, CEA, NLDC and other power sector utilities.

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड
(भारत सरकार का उद्यम)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A Govt. of India Enterprise)

उत्तरी क्षेत्रीय भार प्रेशण केन्द्र / NORTHERN REGIONAL LOAD DESPATCH CENTRE
कार्यालय :18-ए, शहीद जीत सिंह सनसनवाल मार्ग, कटवारिया सराय, नई दिल्ली- 110016
OFFICE :18-A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi- 110016
CIN : U40105DL2009GOI188682, Website : www.nrldc.org, www.nrldc.in, Tel.: 011- 26519406, 26523869, Fax : 011- 26852747

In view of the above, it is requested to kindly ensure that the daily power supply report in respect of J&K(UT) and Ladakh (UT) is positively submitted to the web-based reporting software by 03:00 AM on daily basis. The link of the NRLDC reporting software is given below:

https://reporting.nrldc.in/posocoui/Account/Login

Your kind cooperation in this regard is earnestly solicited.

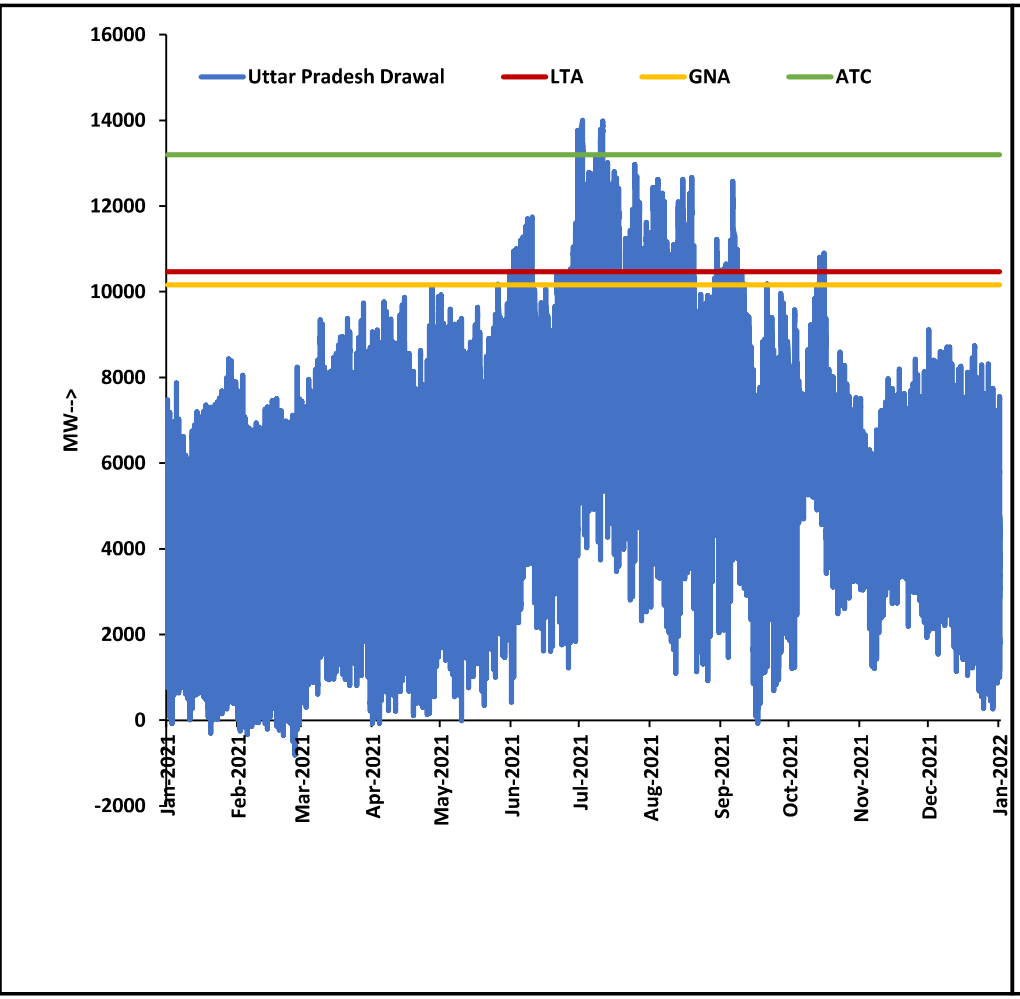
Thank You

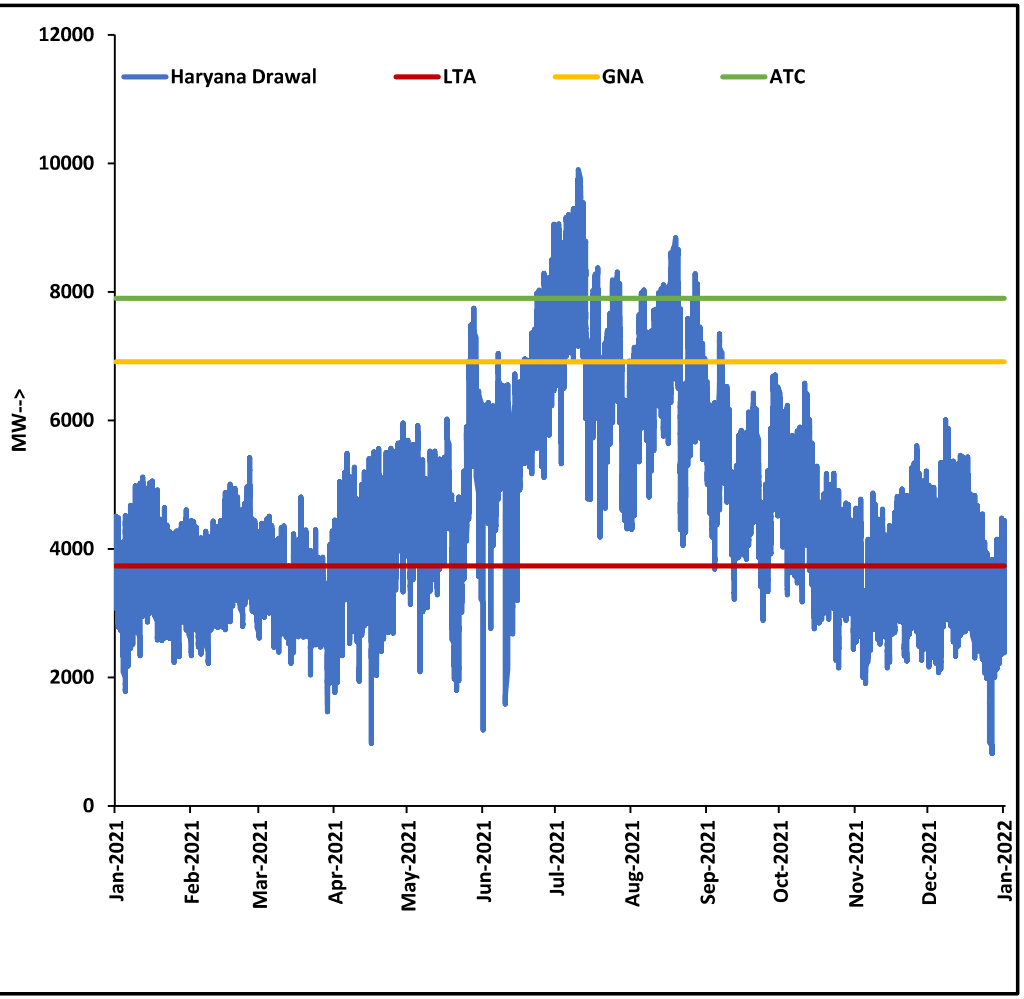
Your faithfully

(Surajit Banerjee)
Chief general Manager (SO-II)
NRLDC, POSOCO

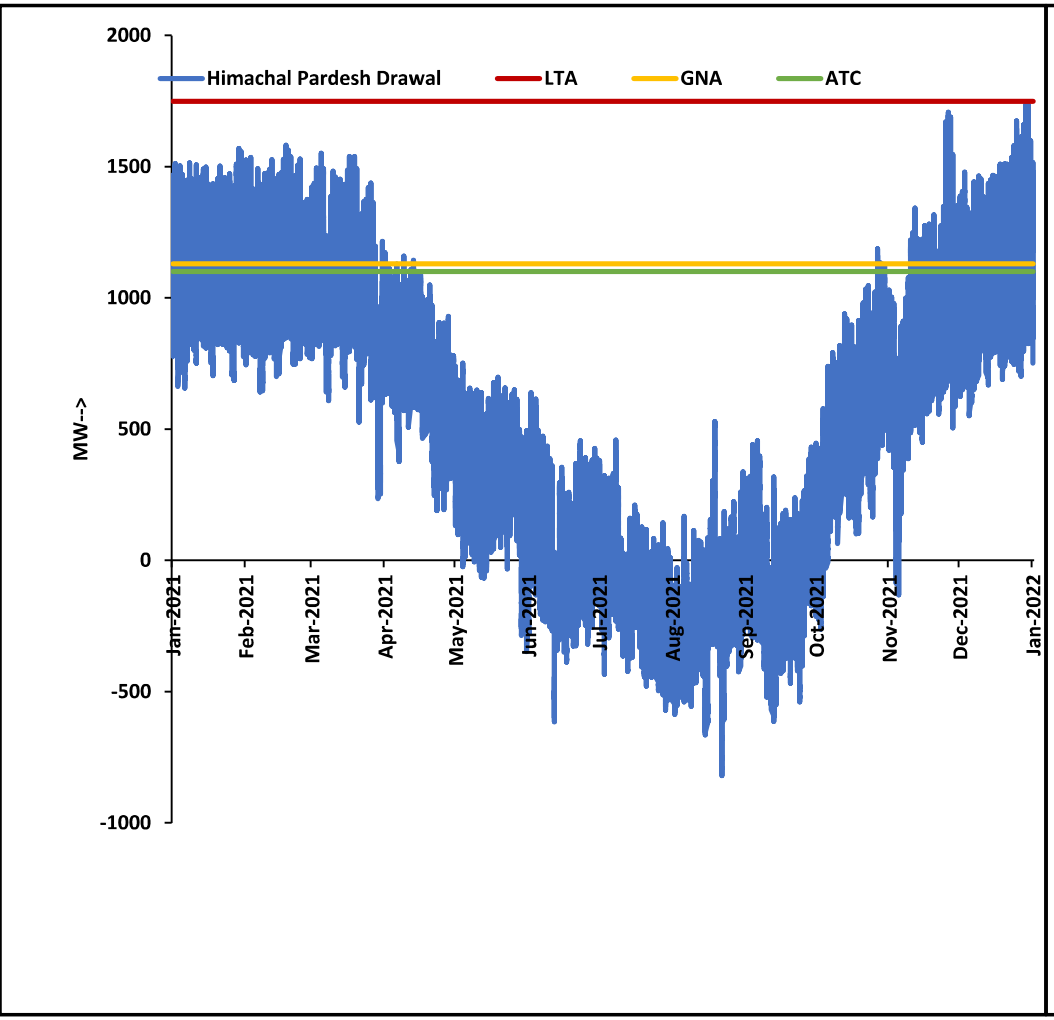
Copy to: 1 Chief General Manager(I/C), NRLDC, POSOCO-For kind information please
2 Member Secretary, NRPC-For kind information please

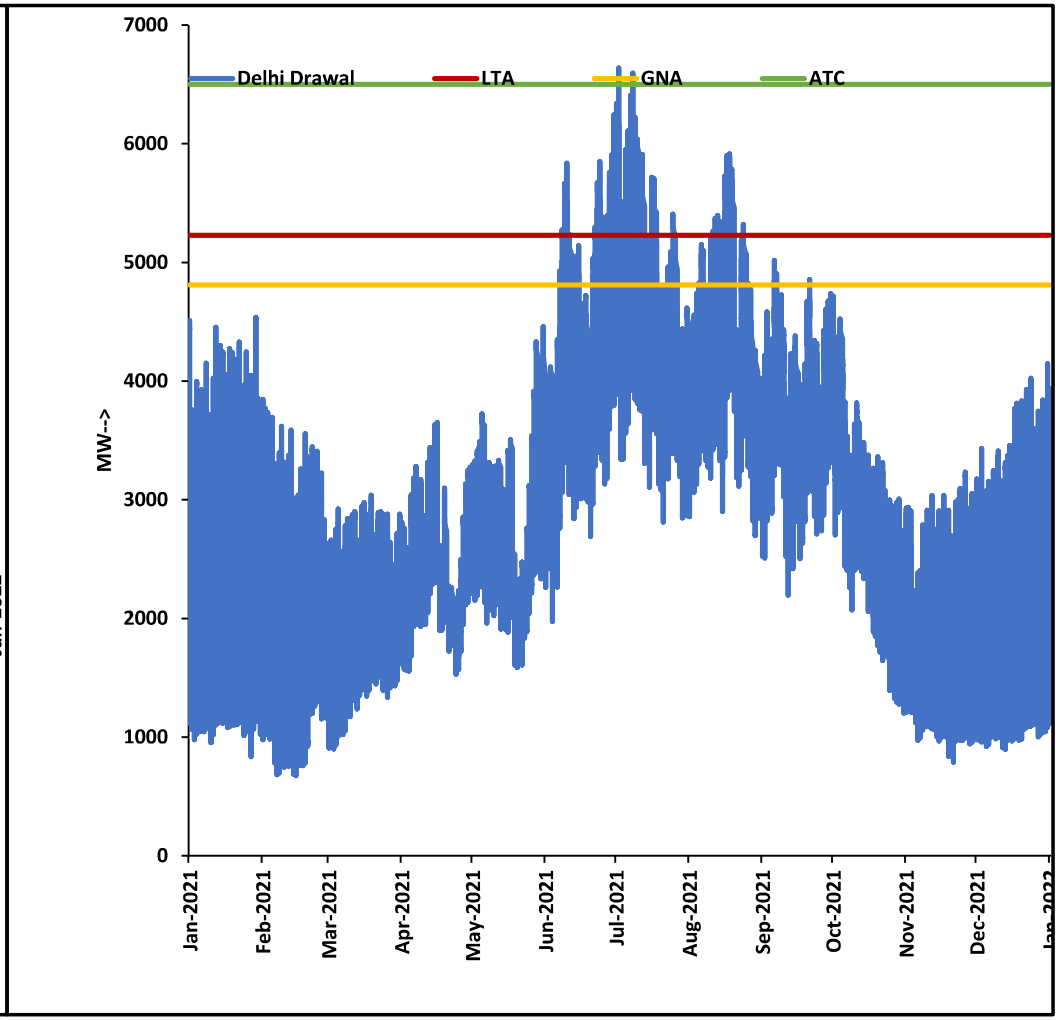
Drawal pattern Vis-à-Vis Proposed GNA for 01.01.2021 – 01.01.2022



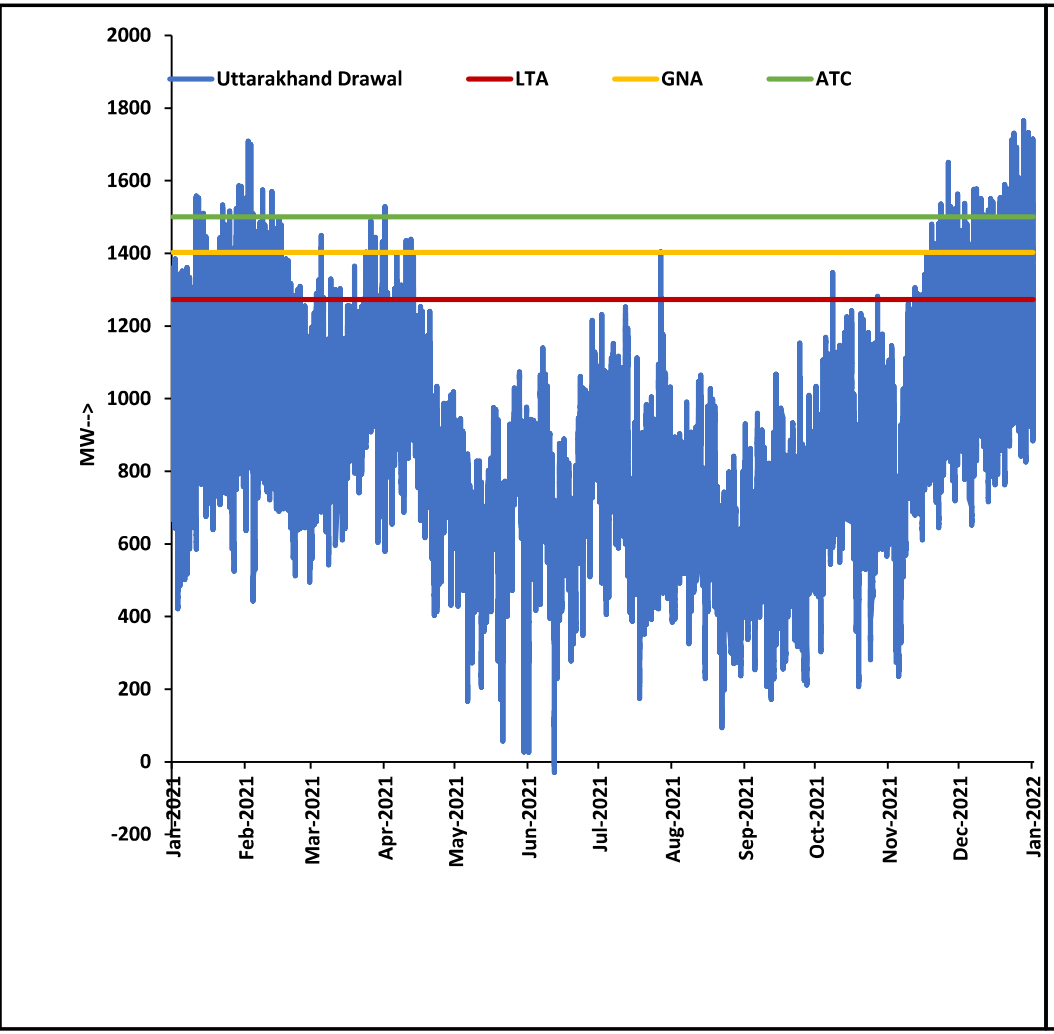


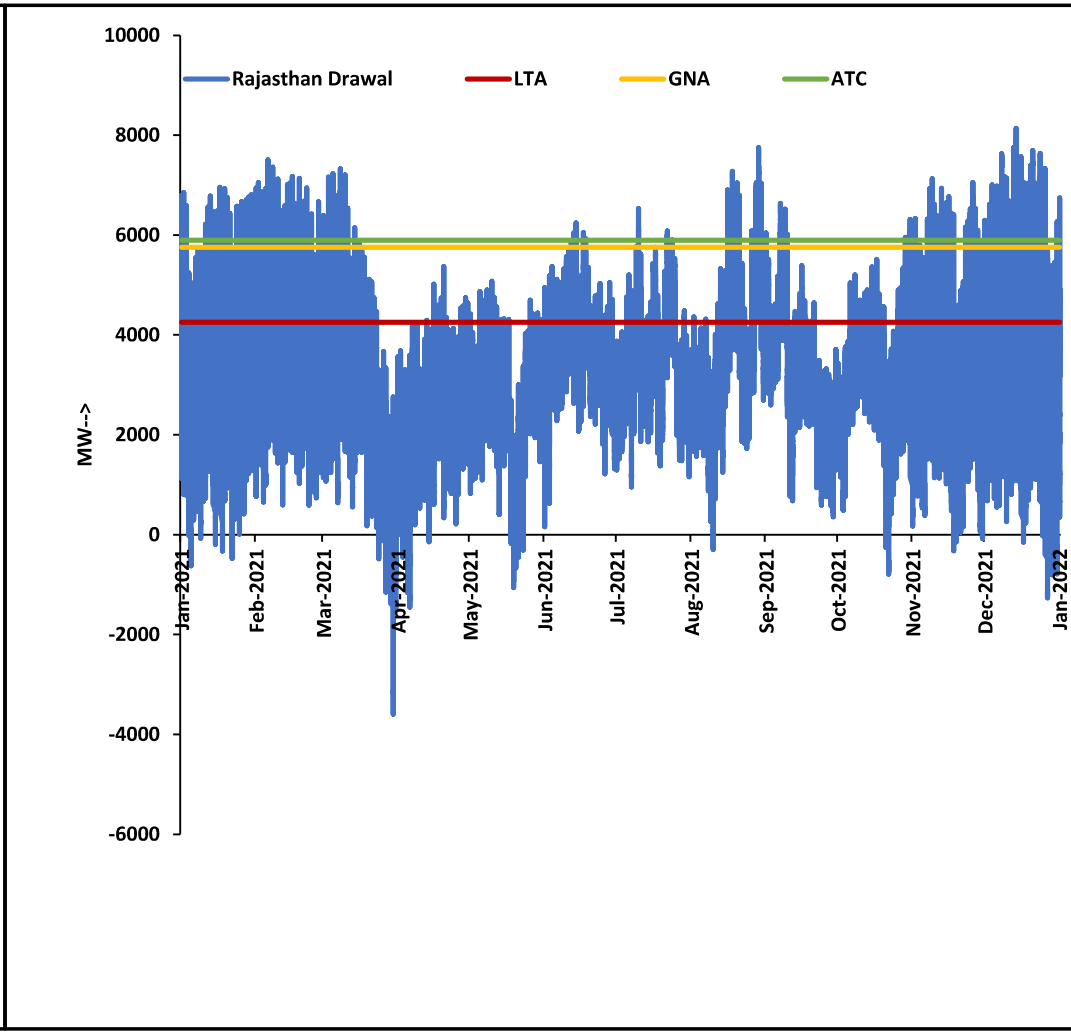
Drawal pattern Vis-à-Vis Proposed GNA for 01.01.2021 – 01.01.2022



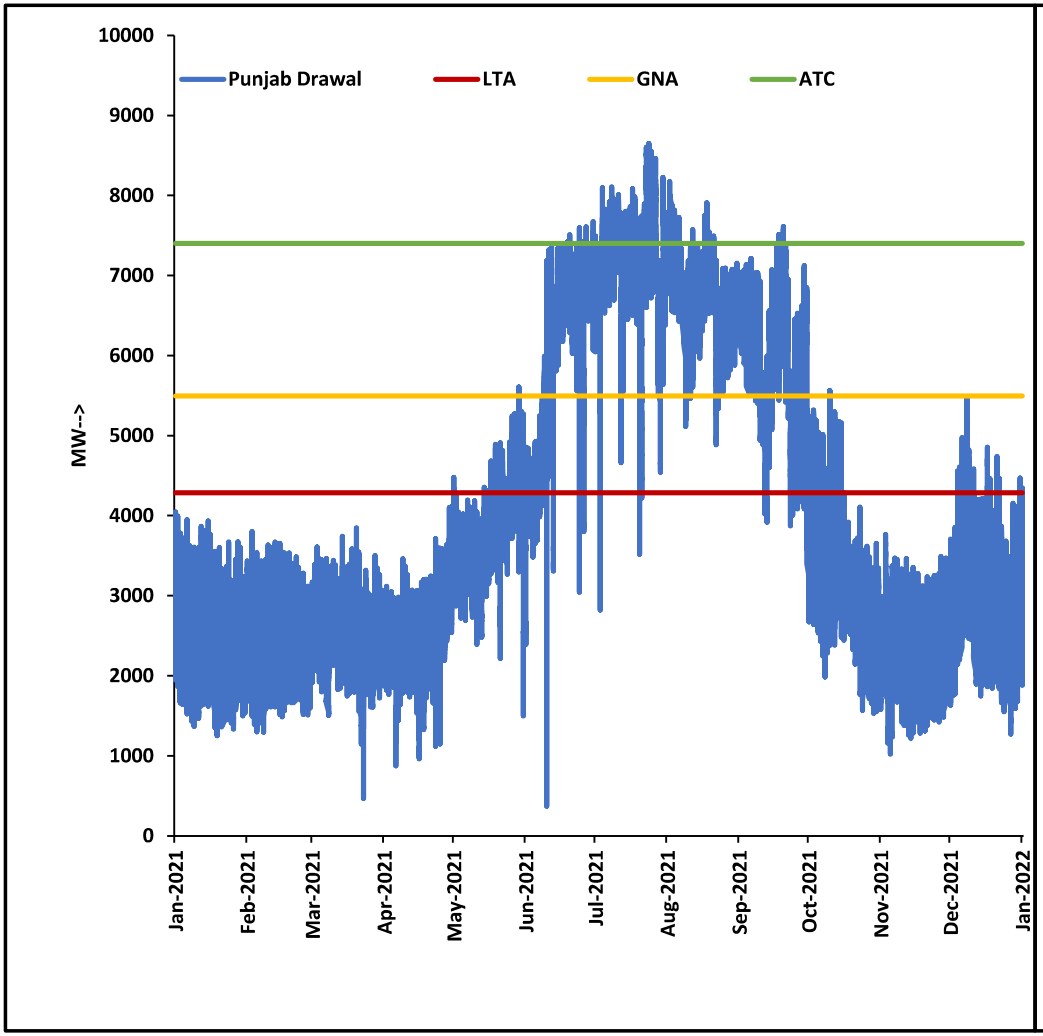


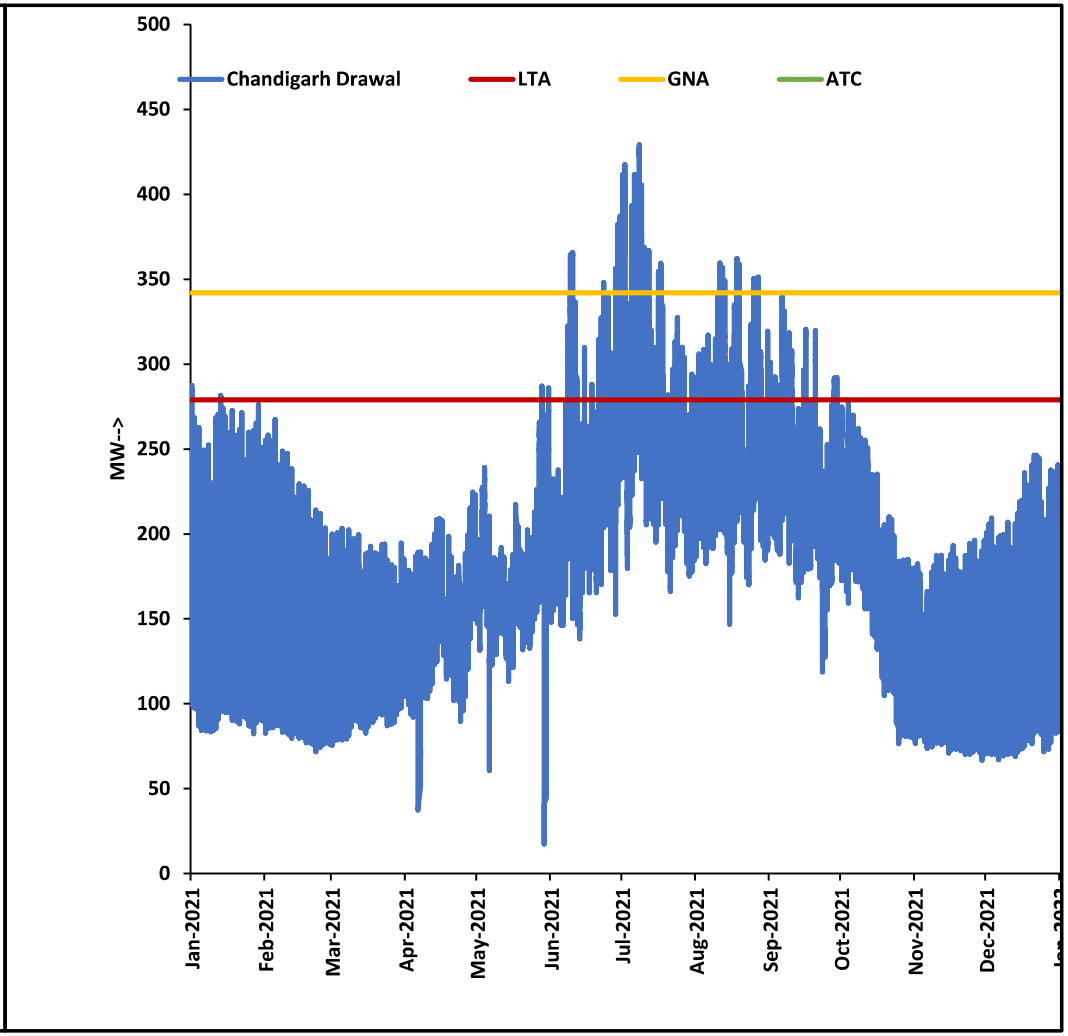
Drawal pattern Vis-à-Vis Proposed GNA for 01.01.2021 – 01.01.2022



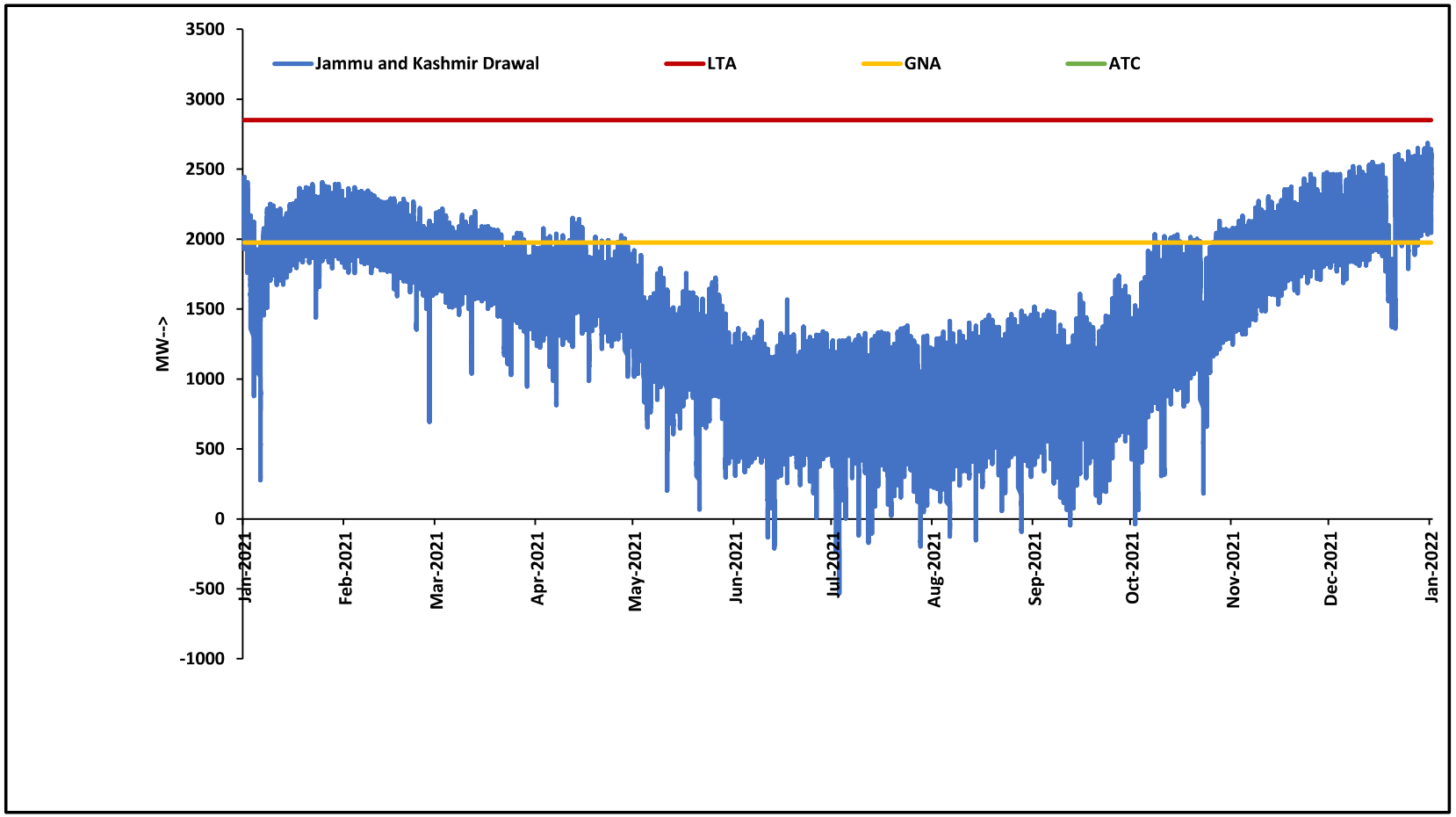


Drawal pattern Vis-à-Vis Proposed GNA for 01.01.2021 – 01.01.2022





Drawal pattern Vis-à-Vis Proposed GNA for 01.01.2021 – 01.01.2022



LTA,GNA & ATC for NR_States

State	LTA+MTOA	GNA	ATC
Delhi	5230	4810	6500
Uttar Pradesh	10476	10165	13200
Punjab	4288	5497	7400
Haryana	3734	6913	7900
Chandigarh	279	342	
Rajasthan	4255	5755	5900
Himachal Pradesh	1750	1130	1100
Jammu & Kashmir	2852	1977	
Uttarakhand	1273	1402	1500

Annexure-B.IV

National Load Despatch Centre
Import Capability of Uttar Pradesh for March2022

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 March 2022 to 31st March 2022	00-24	13800	600	13200	8420	4780		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 March2022

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 March 2022 to 31st March 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 March2022

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 March 2022 to 31st March 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 March2022

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 March 2022 to 31st March 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 March2022

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 March 2022 to 31st March 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

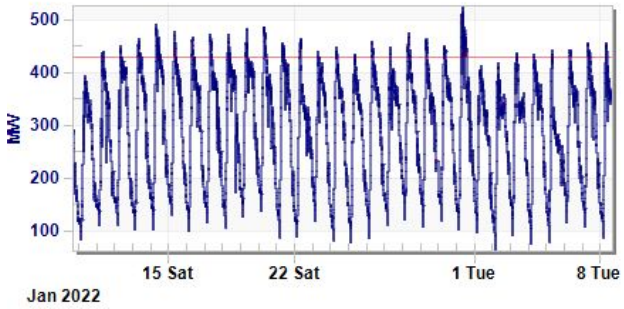
National Load Despatch Centre
Import Capability of Uttarakhand for March2022

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

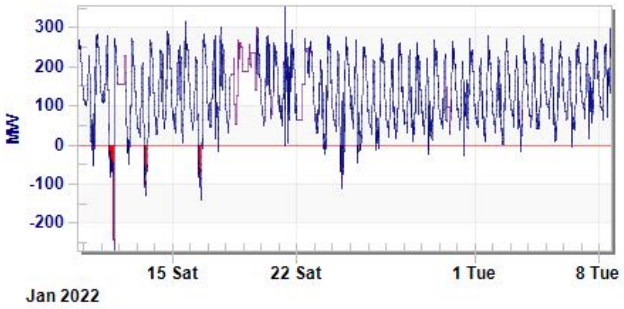
Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st March 2022 to 31st March 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

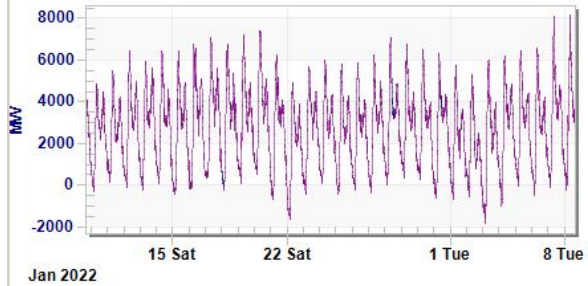
Bhinmal ICT loading



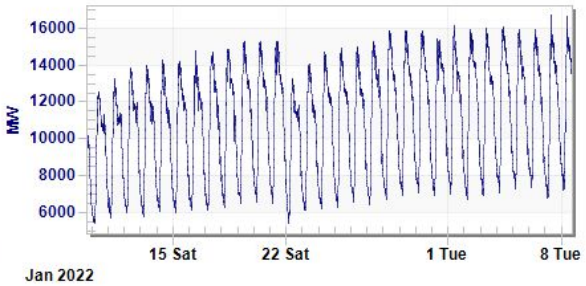
Bikaner ICT loading



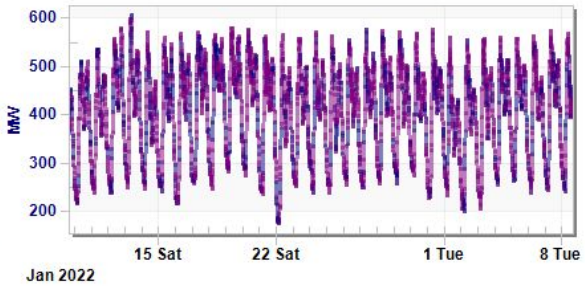
Rajasthan import



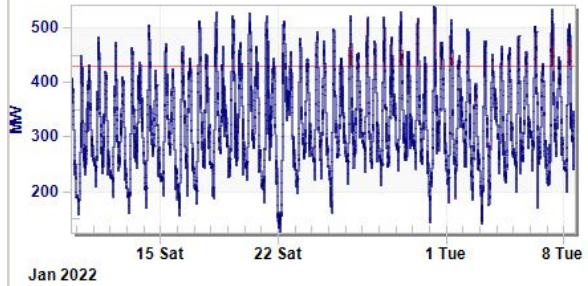
Rajasthan Load



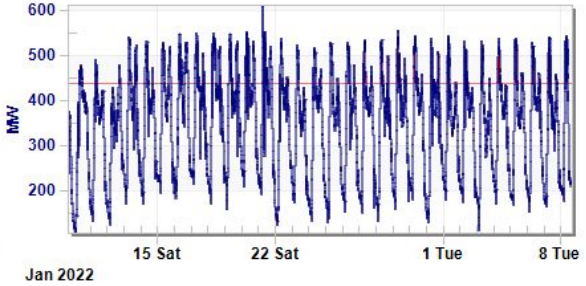
Ajmer ICT loading



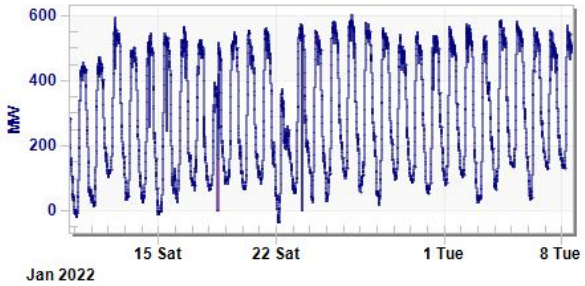
Jodhpur ICT loading

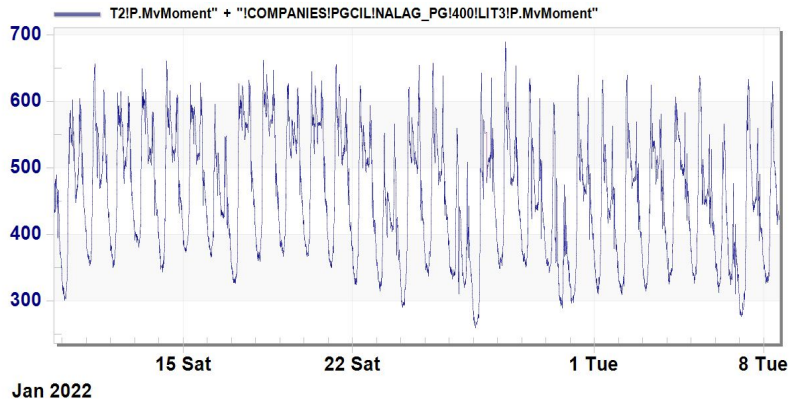


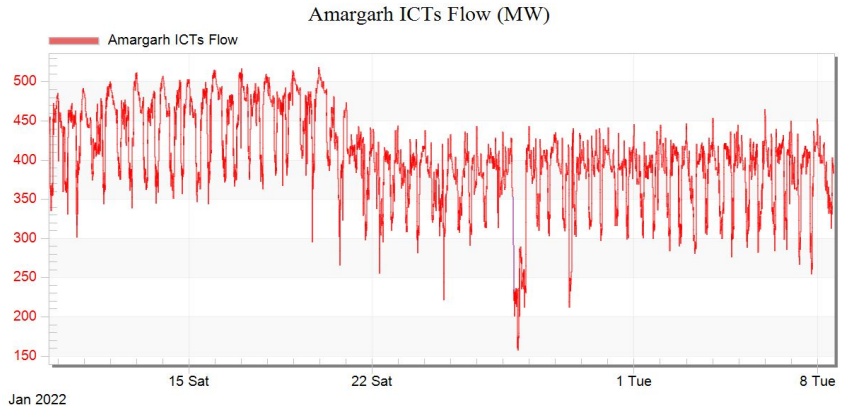
Merta ICT loading

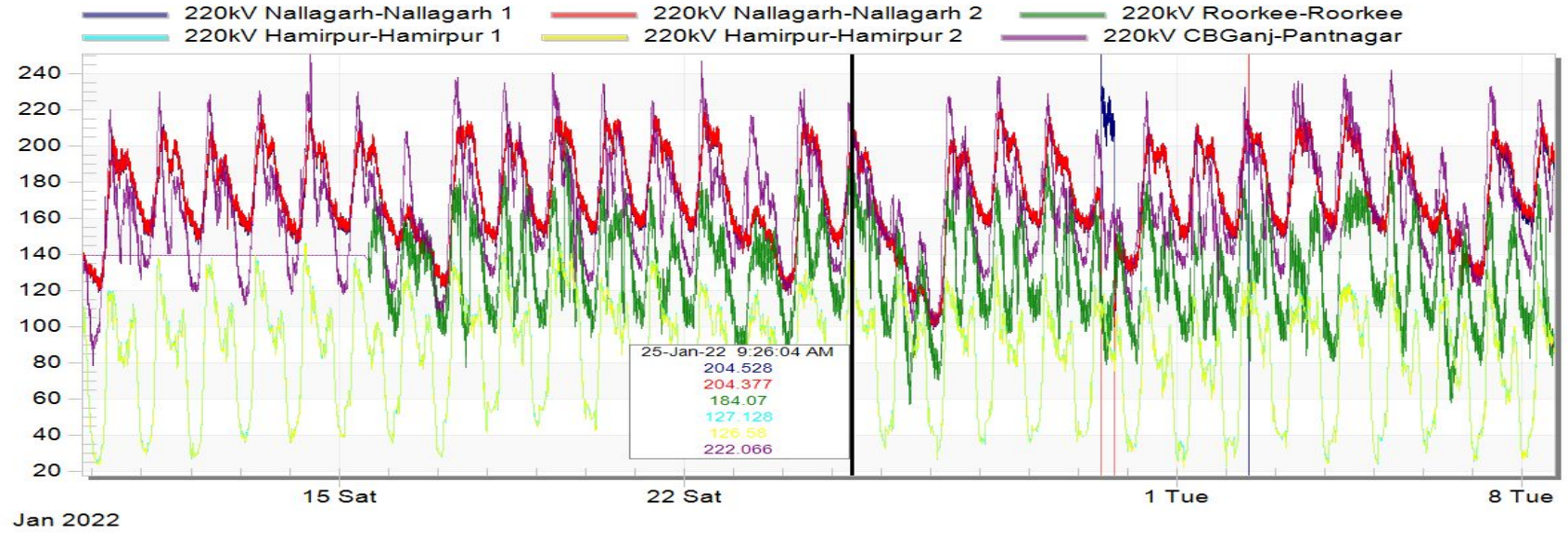


Chittorgarh ICT loading




T2!P.MvMoment" + "!COMPANIES!PGCIL!NALAG_PG!400!LIT3!P.MvMoment"
700
600
500
400
300
15 Sat
22 Sat
1 Tue
8 Tue
Jan 2022


Amargarh ICTs Flow (MW)
Amargarh ICTs Flow
500
450
400
350
300
250
200
150
15 Sat
22 Sat
1 Tue
8 Tue
Jan 2022


220kV Nallagarh-Nallagarh 1
220kV Nallagarh-Nallagarh 2
220kV Roorkee-Roorkee
220kV Hamirpur-Hamirpur 1
220kV Hamirpur-Hamirpur 2
220kV CBGanj-Pantnagar
240
220
200
180
160
140
120
100
80
60
40
20
25-Jan-22 9:26:04 AM
204.528
204.377
184.07
127.128
126.58
222.066
15 Sat
22 Sat
1 Tue
8 Tue
Jan 2022

	LONG OUTAGES REPORT AS ON 07-02-2022						
S. No`	**Element Name**	**Type**	**Owner**	**Outage Date and Time**		**Outage days**	**Reason / Remarks**
A	**LINE**						
1	220 KV Kishenpur(PG)-Ramban(PDD) (PDD) Ckt-1	Line	PDD JK	31-03-2020	16:43	677	Due to heavy land slide near village Dalwas at Ramban damages occurred to 220 KV D/C KPTL at Location No :-187,188 &189 and there is every apprehension of collapsing Tower Loc No 189 .
2	220 KV Abdullapur(PG)-RailwayHR(RLY) (HVPNL) Ckt-1	Line	HVPNL	13-05-2021	13:25	269	For cleaning of allied equipment installed in the switchyard of 220kV S/Stn. Railway traction.
3	220 KV Sohawal(PG)-Gonda(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:00	179	Emergency shutdown of line taken, as tower no. 34 is affected by flood.
4	220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:12	179	Emergency shutdown of line taken, as tower no. 34 is affected by flood.
5	220 KV AGRA(PG)-FEROZABAD(UP) (UP) CKT-1	Line	UPPTCL	27-11-2021	09:55	72	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.
6	220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-2	Line	DTL	10-01-2022	15:39	27	Y-phase CB of 220kV Mandola-Gopalpur-2 blasted at Mandola at 20:42 hrs on dated 28.12.2021. The porcelain of Line side Y-phase Isolator of Gopalpur-2 line got damaged. S/D taken to attend the alignment and the IPS tube connection of 20389L isolator Y-phase to BPI.
7	400 KV AMARGARH(NRSS XXIX)-SAMBA(PG) (NRSS XXIX) CKT-2	Line	NRSS XXIX	20-01-2022	13:18	17	Urgent SD to bypass tower #286 along with dismantling of tower #286 to safeguard the transmission line from landslide conditions subsequent to uninformed excessive hill cutting done by BRO (OCC 191)
8	400 KV AMARGARH(NRSS XXIX)-SAMBA(PG) (NRSS XXIX) CKT-1	Line	NRSS XXIX	20-01-2022	13:19	17	
B	**BAYS**						
1	419 MAIN BAY - 50 MVAR BUS REACTOR NO 1 AT 400KV AMARGARH(NRSS XXIX) AND 400KV BUS 2 AT AMARGARH(NRSS XXIX)	BAY	NRSS XXIX	07-07-2020	09:34	580	CEA clearance awaited
2	40452B MAIN BAY - 400KV SURATGARH(RVUN)-RATANGARH(RS) (RS) CKT-1 AT Ratangarh(RS)	BAY	RRVPNL	25-12-2020	17:05	408	Emergency shutdown for refilling of SF6 gas in R-phase of Circuit Breaker. Later leakage found. Revival delayed due to non-availability of required spare parts.
3	400 KV Kadarpur (GPTL) - Bus 1	BUS	GPTL	17-04-2021	13:18	295	E/S/D taken due to abnormal humming sound observed from 400KV B-phase BUS-1 CVT at Kadarpur.

S.No	Element Name	Type	Owner	Outage		Outage days	Reason / Remarks
C	ICT						
1	400/220 kV 315 MVA ICT 1 at Bhilwara(rs)	ICT	RRVPNL	12-05-2019	23:42	1001	Oil leakage in transformer.
2	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	ICT	UPPTCL	13-03-2020	02:46	696	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover. To be replaced by 500 MVA ICT.
3	400/220 kV 315 MVA ICT 2 at Bawana(DV)	ICT	DTL	30-03-2021	17:35	313	400kV side B-phase bushing blasted. Tripped on differential protection, REF protection. ICT catches fire and damaged.
4	400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP)	ICT	UPPTCL	19-08-2020	16:30	537	500 MVA ICT-I also got damaged due to fire in ICT-II, for protection testing.
5	400/220 kV 315 MVA ICT 2 at Mundka(DV)	ICT	DTL	20-09-2019	00:419	871	Due to fire in ICT.
6	765/400 kV 1500 MVA ICT 2 at Gr.Noida_2(UPC)	ICT	UPPTCL	12-11-2021	14:22	86	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
7	400/220 kV 315 MVA ICT 4 at Mundka(DV)	ICT	DTL	13-11-2021	19:15	85	Buchholz trip.
8	400/220 kV 240 MVA ICT 3 at Moradabad(UP)	ICT	UPPTCL	13-12-2021	22:38	55	Due to high DGA values, Hydrogen gas is above permissible limit.
9	220/33 kV 125 MVA ICT 4 at Saurya Urja Solar(SU)	ICT	SAURYA URJA	20-12-2021	20:15	48	ICT-4 tripped due to operation of of PRD, REF, Differential and Buchholz relay.
10	400/220 kV 315 MVA ICT 1 at Bikaner(RS)	ICT	RRVPNL	03-01-2022	08:23	35	O/C trip, Y-Ph optd, STG-2. 86 A, 86 B
11	400/220 KV 240 MVA ICT 3 AT MURADNAGAR_2(UP)	ICT	UPPTCL	05-01-2022	12:08	32	Replacement of Gaskit of 240 MVA ICT-III

D	LINE REACTOR						
1	50 MVAR Non-Switchable LR on Agra-Unnao (UP) Ckt-1 @Agra(UP)	LR	UPPTCL	28-10-2021	22:27	101	R and Y phase bushing damaged at Agra(UP).
2	50 MVAR Non-Switchable LR on Allahabad-Fatehpur (PG) Ckt-2 @Allahabad(PG)	LR	POWERGRID	27-11-2021	00:32	72	After multiple emails and telephonic conversations to furnish the reason for the outage no reply has been obtained from CPCC-3.
3	50 MVAR Non-Switchable LR on Allahabad-Fatehpur (PG) Ckt-1 @Allahabad(PG)	LR	POWERGRID	27-11-2021	00:32	72	After multiple emails and telephonic conversations to furnish the reason for the outage no reply has been obtained from CPCC-3.
E	**BUS REACTOR**						
1	80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SJ)	BR	SJVNL	17-10-2019	12:58	843	Flashover/Fault in 80MVAR Bus Reactor cleared by Bus Bar Protection. Expected revival in Dec-2021.
2	50 MVAR Bus Reactor No 1 at 400KV Moradabad(UP)	BR	UPPTCL	03-12-2021	22:22	65	R-phase bushing damaged.

F	GENERATING UNITS					
S.No	Station	Owner	Outage Reason	Outage Date	Outage Time	Outage duration(in days)
1	40 MW Sewa-II HPS - UNIT 2	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by 22-Feb-2022.	25-09-2020	00:00	500
2	40 MW Sewa-II HPS - UNIT 3	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by 22-Feb-2022.	25-09-2020	00:00	500
3	40 MW Sewa-II HPS - UNIT 1	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by 22-Feb-2022.	25-09-2020	00:00	500
4	600 MW RGTPP (Khedar) - UNIT 2	HVPNL	Capital Overhauling. Expected date to be confirmed from HVPNL.	02-03-2021	00:00	342
5	66 MW Pong HPS - UNIT 4	BBMB	Failure of compressed air system of Breaking.	28-07-2021	15:00	193
6	250 MW Chhabra TPS - UNIT 4	RRVPNL	Due to ESP structure damage	09-09-2021	00:47	151
7	35 MW Budhil HPS (IPP) - UNIT 1	Greenko Budhil	Flooding of power house due to damage of Main Inlet Valve at Budhil.	26-10-2021	17:00	103
8	100 MW Koteshwar HPS - UNIT 1	THDC	due to fault in GT	04-11-2021	22:58	94
9	126 MW Bhakra HPS - UNIT 4	BBMB	Annual Maintenance	01-12-2021	09:30	68

F	GENERATING UNITS					
S.No	**Station**	**Owner**	**Outage Reason**	**Outage Date**	**Outage Time**	**Outage duration(in days)**
10	104.6 MW Pragati Gas Turbines - UNIT 2	DTL/Pragati CCGT	Internal fault	26-12-2021	01:10	43
11	60 MW Bairasiul HPS - UNIT 2	NHPC	Complete Shutdown for Replacement of Draft Tube Drain Valve up to 07/01/2022 and along with Annual Maintenance up to 23/01/2022 .	03-01-2022	00:00	35
12	110 MW Kishenganga - UNIT 2	NHPC	Annual Maintenance	04-01-2022	10:00	34

Annexure – B6

Undertaking / Self Certification by Owner under Regulation 43(7) of CEA (Measures relating to safety and electric supply) regulations 2010 For Replacement due to Failure

(*to be duly signed by Station Incharge/Asset Owner/CE SLDC on a Letter Head*)

Ref. No: Date:

To,

The Executive Director,
_____ Regional Load Despatch Centre,
_____,
_____

Sub: Charging of [Element Name] with replaced [new CT/CVT/PT/LA/Isolator/CB…. with ratings/Tower with loc] of [Asset Owner] at [Substation Name]

Sir,

The failure was observed on [old CT/CVT/PT/LA/Isolator/CB….. with ratings/Tower(loc)] of [Element Name] at [Substation Name] due to [reason] on [Date]. The faulty [old CT/CVT/PT/LA/Isolator/CB.....with ratings/Tower(loc)] of [_____] make has been replaced by [Asset Owner] on [Date] with [new CT/CVT/PT/LA/Isolator/CB..... with ratings/ Tower(loc)]] of [____] make. I hereby undertake that

1. The said (new CT/CVT/PT/EMVT/LA/CB.....) is not a new element to be charged for first time and is a replacement element.	
2. We have complied to CEA Measures relating to Safety and Electric Supply 2010 (as amended) and all statutory clearances have been obtained for the said replacement.	
3. All protection systems are in place.	
4. There is no change in CTR/PTR wrt metering and telemetry. Or There is change in CTR / PTR wrt metering and telemetry. Necessary activities of incorporation of changes at SLDC and / or RLDC has been done.	**strike through if not applicable**
5. There is no change in the length of the line after works of transmission line. Or After completion of the works, the length of the transmission line is increased by _____ m.	
6. There is no change in the count of the tower after works of transmission line. Or After completion of the works, _____ Nos. of additional towers are erected in the transmission line. New erected towers are _____ (tower identification numbers)	
7. There is no change in the route alignment of transmission line. Or	

After completion of the works, route alignment of transmission line is changed.	
8. There is no requirement of change in protection coordination at main and adjacent substations after completion of the works of the transmission line. Or Necessary protection coordination at main and adjacent substations after completion of the works of the transmission line has been carried out as per RPC guidelines.	
9. PTCC clearance has been obtained during the first time commissioning of the line and since only minor changes/modification has only been carried out and as such the modification is within the limit as per the Regulation and the norms specified in sec 160 of the Electricity Act,2003.	

May kindly allow the charging.

Thanking you,

Yours faithfully,

Signature and stamp of
Station Incharge / Asset owner
with Station Name

Annexure -B7

Undertaking / Self Certification by Owner under Regulation 43(7) of CEA (Measures relating to safety and electric supply) regulations 2010 For Diversion of TL / Tower Height modification

(*to be duly signed by Station Incharge/Asset Owner/CE SLDC on a Letter Head*)

Ref. No: Date:

To,

The Executive Director,
_____ Regional Load Despatch Centre,
_____,
_____

Sub: Charging of [Transmission line Name] after diversion by [Asset Owner]

Sir,

A diversion / modification of the [Name of Transmission line] due to [reason] was approved. The activity of [Name of the transmission line] diversion is under execution by [Name of the asset owner] from [date of starting of outage]. In regard to the aforementioned diversion, I hereby undertake that

1. The said (Name of Transmission line) is not a new element to be charged for first time.	
2. We have complied to CEA Measures relating to Safety and Electric Supply 2010 (as amended) and all statutory clearances have been obtained for the said diversion.	
3. All protection systems are in place.	
4. There is no change in the length of the line after works of transmission line. Or After completion of the works, the length of the transmission line is increased by _____ m.	**strike through if not applicable**
5. There is no change in the count of the tower after works of transmission line. Or After completion of the works, _____ Nos. of additional towers are erected in the transmission line. New erected towers are _____ (tower identification numbers)	
6. There is no change in the route alignment of transmission line. Or After completion of the works, route alignment of transmission line is changed.	
7. There is no requirement of change in protection coordination at main and adjacent substations after completion of the works of the transmission line. Or Necessary protection coordination at main and adjacent substations after completion of the works of the transmission line has been carried out as per RPC guidelines.	
8. PTCC clearance has been obtained during the first time commissioning of the line and since only minor changes/modification has only been carried out and as such the modification is	

within the limit as per the Regulation and the norms specified in sec 160 of the Electricity Act,2003.	

May kindly allow the charging.

Thanking you,

Yours faithfully,

Signature and stamp of
Station Incharge / Asset owner
with Station Name

Annexure – B8

Undertaking / Self Certification by Owner under Regulation 43 of CEA (Measures relating to safety and electric supply) regulations 2010 for Anti Theft Charging

(*to be duly signed by Station Incharge/Asset Owner/CE SLDC on a Letter Head*)

Ref. No: Date:

To,

The Executive Director,
_____ Regional Load Despatch Centre,
_____,
_____

Sub: Anti Theft Charging of [length] km length of [Transmission Line Name] from [Substation Name] end

Sir,

With reference to the anti-theft charging proposal of [Transmission Line Name] transmission line, I hereby undertake that:

1. The said [Transmission Line] is an under-construction transmission line and is not terminated at both the ends. To prevent theft during construction, anti theft charging from [name of the substation] end is required. or The said [Transmission Line] has already been First time charged. Due to failure of towers in [details of transmission section] section of transmission line, the line has lost completeness. To prevent theft during repair and restoration activity anti theft charging from [name of the substation] end is required.
2. We have complied to all provisions of CEA Measures relating to Safety and Electric Supply Regulations 2010 (as amended). Approval of Electrical inspector statutory clearances shall be obtained by asset owner after completion and termination of the line at bays / substation at both ends and shall be submitted prior to charging/energization of the complete line.
3. All protection systems are in place. Necessary protection coordination at main and adjacent substations after completion of the works of the transmission line has been carried out as per RPC guidelines.
4. The length of anti theft charged section is _____ km.
5. Anti theft charged section of the said line will cover _____ Nos. of towers. From location _____ to _____ (tower identification numbers)
6. All concerned parties, asset owners of both ends and Transmission line sections are already informed in writing for anti theft charging of the said line section.
7. All the men and materials from the line are removed. All safety measures are taken for anti theft charging of the said line.

May kindly allow the proposed anti-theft charging.

Thanking you,

Yours faithfully,

Signature and stamp of
Station Incharge / Asset owner
with Station Name

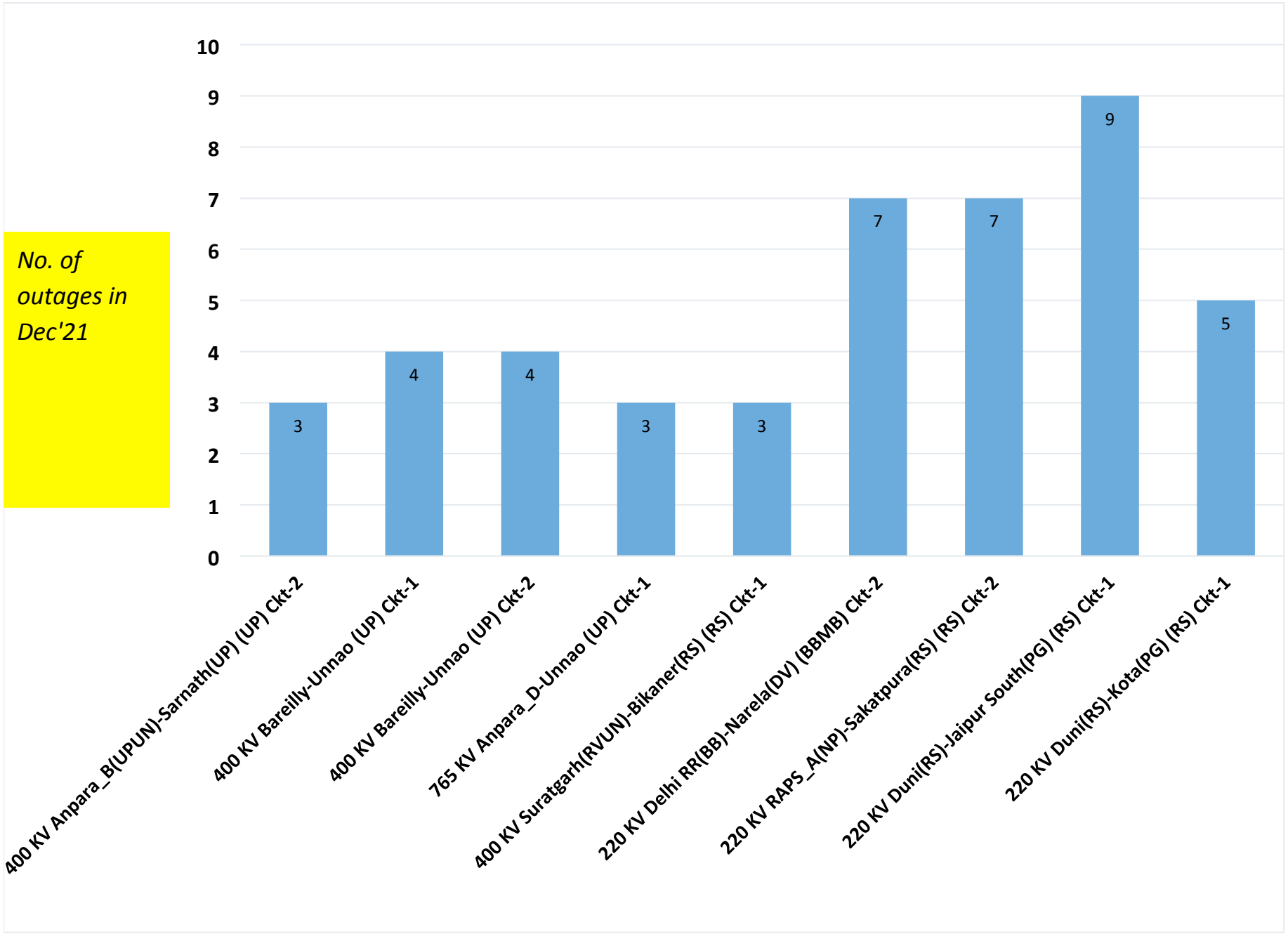
Sr No	Element Name	Outage Date	Outage Time	Reason
1	765 KV Anpara_D-Unnao (UP) Ckt-1	14-Jan-22	4:13	B-N fault. As per PMU, B-N fault occured, no auto-reclosing observed.
		15-Jan-22	1:44	B-N fault. As per PMU, B-N fault occured, no auto-reclosing observed.
		15-Jan-22	22:11	B-N fault. As per PMU, B-N fault occured, no auto-reclosing observed.
		17-Jan-22	9:56	Reactor Differential Protection (MiCOM P-632) Y-phase Differential Operated. The relay P-632 was not communicating with the SCADA system. On rebooting this relay, it generated the tripping. As per PMU, No fault observed.
		18-Jan-22	8:10	R-N fault, Zone-1, Dist. 172.1km, Fault current 3.872kA from Anpara-D end. As per PMU, R-N fault occured, no auto-reclosing observed.
		31-Jan-22	7:10	R-N fault. As per PMU, R-N fault occured, no auto-reclosing observed.
2	765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1	15-Jan-22	3:48	Y-N fault. As per PMU, Y-N fault occured, no auto-reclosing observed.
		19-Jan-22	11:50	Line tripped from Unnao end only. Line auto-reclosed from Anpara-C end. As per PMU, No fault observed.
		22-Jan-22	20:32	R-B fault. As per PMU, R-B fault is observed.
3	400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1	23-Jan-22	12:40	Tripped on Y-phase overcurrent from PGCIL end as reported by AYANA. As per PMU, No fault observed.
		25-Jan-22	11:45	Over-current in R and B phase from ARP1PL. As per PMU, No fault observed.
		26-Jan-22	12:05	Overcurrent R and Y phase, Iy 12.5kA, Ir 0.35kA. Fault at LV side of sub-station. As per PMU, Y-N fault occurred and delayed clearance of 320ms with no auto-reclosing observed.
		29-Jan-22	11:36	Tripped on Y phase overcurrent protection only at Bikaner end. No tripping or indications received at Ayana end. As per PMU, No fault observed.
4	400 KV Muradnagar_2-Mathura (UP) Ckt-1	8-Jan-22	10:39	R-N fault. As per PMU, R-N fault occured, no auto-reclosing observed.
		8-Jan-22	22:54	Y-N fault, Zone-1, Dist. 59.7km, Fault current 3.839kA from Muradnagar end. As per PMU, Y-N fault occured, no auto-reclosing observed.
		11-Jan-22	2:20	B-N fault, Zone-1, Dist. 105.3km, Fault current 2.763kA from Mathura (UP). As per PMU, B-N fault occured, no auto-reclosing observed.
		17-Jan-22	13:27	R-N fault, Zone-1, Dist. 109.3km, Fault current 2.517kA from Mathura(UP). As per PMU, R-N fault and unsuccessful auto-reclosing observed.
5	400 KV Gorakhpur(PG)-Gorakhpur(UP) (PG) Ckt-1	9-Jan-22	11:41	Line tripped only from Gorakhpur(UP) end. As per PMU, No fault observed.
		9-Jan-22	15:57	Tripped due to faulty control cable of circuit breaker. As per PMU, No fault observed.
		10-Jan-22	15:42	Tripped due to Pole-Discrepancy relay operation in bay no. 408 at Gorakhpur(UP). Line charged through TBC. As per PMU, No fault observed.
		15-Jan-22	14:16	Line tripped only from UP end. As per PMU, R-N fault occured, no auto-reclosing observed.
6	400 KV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1	3-Jan-22	3:45	B-N fault, Zone-1, Dist. 92.86km, Fault current 2.45kA from Hindaun end. As per PMU, B-N fault occured, no auto-reclosing observed.
		6-Jan-22	2:26	B-N fault, Zone-1, Dist. 10.33km, Fault current 3.160kA from Hindaun end. As per PMU, B-N fault occured, no auto-reclosing observed.
		6-Jan-22	18:54	B-N fault, Zone-1, Dist. 6.86km, Fault current 5.138kA from Hindaun end. As per PMU, No fault observed.
		6-Jan-22	21:30	B-N fault, Zone-1, Dist. 8.003km, Fault current 5.414kA from Hindaun end. As per PMU, No fault observed.
7	400 KV Alaknanda GVK(UPC)-Srinagar(UK) (UK) Ckt-1	7-Jan-22	21:13	Tripped due to mal-operation of 86A & 86B master trip relay at Srinagar end. As per PMU, No fault observed.
		8-Jan-22	18:25	86A ,86B relay operated, DT received at Srinagar (UK) end. As per PMU, No fault observed.
		12-Jan-22	1:17	R-N fault. As per PMU, R-N fault occured, no auto-reclosing observed.
8	400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-1	5-Jan-22	16:57	Tripped on over voltage. As per PMU, over voltage observed.
		5-Jan-22	22:50	Tripped on over voltage. As per PMU, over voltage observed.
		8-Jan-22	15:15	Tripped on over voltage. As per PMU, over voltage observed.
9	400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-2	5-Jan-22	12:46	B-N fault. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
		6-Jan-22	12:06	B-N fault. As per PMU, No fault observed.
		8-Jan-22	3:15	B-N fault, Zone-1, Dist. 22.7km from Loni Harsh Vihar. As per PMU, No fault observed.
10	400 KV Obra_B-Sultanpur (UP) Ckt-1	5-Jan-22	2:58	Line tripped during charging attempt taken of 400 KV Lucknow-Sultanpur from Sultanpur.SOTF operated. As per PMU, Y-N fault occurred and delayed clearance of 640ms with no auto-reclosing observed.
		19-Jan-22	14:14	Y-N fault. As per PMU, Y-N fault occured, no auto-reclosing observed.
		21-Jan-22	5:22	R-N fault. As per PMU, R-N fault occured, no auto-reclosing observed.
11	400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-2	14-Jan-22	19:42	R-N fault, fault current 4.22KA, 64Km from Ratangarh end. As per PMU, B-N fault occured, no auto-reclosing observed.
		22-Jan-22	21:03	B-N fault, fault current 3.92KA, 68.9Km from Ratangarh end. As per PMU, R-N fault occured, no auto-reclosing observed.
		27-Jan-22	20:50	R-N fault, fault current 5.8KA, 35Km from Ratangarh end. As per PMU, B-N fault occured, no auto-reclosing observed.
12	220 KV Bairasiul(NH)-Pong(BB) (PG) Ckt-1	7-Jan-22	13:11	Due to tripping of 220 KV feeders from other end, Bus is in isolated mode, Tripping occured due to stormy weather. As per PMU, B-N fault occurred and delayed clearance of 520ms with no auto-reclosing observed.
		8-Jan-22	9:10	R-N fault. As per PMU, No fault observed.
		11-Jan-22	13:29	Tripped on over voltage. As per PMU, No fault observed.
		16-Jan-22	14:17	Tripped on over voltage. As per PMU, No fault observed.
		30-Jan-22	13:01	Tripped on over voltage. As per PMU, No fault observed.
13	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	9-Jan-22	19:00	Y-N Fault, Fault current 2.43kA from Debari end, 193.8km from RAPP-A end. As per PMU, No fault observed.
		16-Jan-22	6:24	Y-N fault. As per PMU, No fault observed.
		23-Jan-22	0:45	Y-N fault, Dist. 29.1km, Fault current 1.77kA from Debari(RS) end. As per PMU, No fault observed.
		24-Jan-22	2:26	Y-N fault, Dist. 137.3km, Fault current 0.78kA from Debari(RS) end. As per PMU, No fault observed.
		27-Jan-22	2:54	R-N fault, Dist. 138.5km, Fault current 0.77kA from Debari(RS) end. As per PMU, No fault observed.

S. NO.	Element Name
1	400 KV Anpara_B(UPUN)-Sarnath(UP) (UP) Ckt-2
2	400 KV Bareilly-Unnao (UP) Ckt-1
3	400 KV Bareilly-Unnao (UP) Ckt-2
4	765 KV Anpara_D-Unnao (UP) Ckt-1
5	400 KV Suratgarh(RVUN)-Bikaner(RS) (RS) Ckt-1
6	220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-2
7	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2
8	220 KV Duni(RS)-Jaipur South(PG) (RS) Ckt-1
9	220 KV Duni(RS)-Kota(PG) (RS) Ckt-1

No. of forced outages	Utility/SLDC
3	UP
4	UP
4	UP
3	UP
3	Rajasthan
7	BBMB/Delhi
7	Rajasthan/NPCIL
9	Rajasthan/POWERGRID
5	Rajasthan/POWERGRID

As per PMU, No fault observed.
As per PMU, Y-N fault occured, no auto-reclosing observed.
As per PMU, B-N fault occured, successful autoreclsoing is observed.
As per PMU, B-N fault and unsuccessful auto-reclosing observed.
As per PMU, multiple faults are observed.
As per PMU, R-B fault is observed.
As per PMU, Y-N fault occurred and delayed clearance of 400ms with no auto-reclosing observed.

No. of outages in Dec'21



Annexure-B.IX

Duration	Event *(As reported)*	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)
				Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
2 days 9 Hours 57 Minutes	At 08:23 Hrs, 400/220 kV 315 MVA ICT 1 tripped on Y-ph over current and Bucholz protection operation. At the same time, 400/220 kV 315 MVA ICT 2 also tripped on Y-ph over current protection operation. As per PMU, no fault is observed. As per DR received, over current was observed in Y-ph of ICT-1. In antecedent condition, 400/220 kV 315 MVA ICT 1 & ICT 2 were carrying 257MW & 261MW respectively.	0	0	0	0	0.000	0.000	41440	50614	NA
1 Hours 42 Minutes	At 02:58 Hrs, during charging of 400 KV Lucknow-Sultanpur ckt from Sultanpur end, line tripped on SOTF protection operated at Sultanpur end. At the same time, 400 KV Obra_B-Sultanpur (UP) Ckt-1 tripped from Obra end only in Z-3, 400kV Sultanpur-Tanda ckt tripped on over voltage protection operation at Tanda end and DT received at Sultanpur end and all three 400/220kV (315MVA ICT-1,3 & 240MVA ICT-2) ICTs tripped on earth fault protection operation. As per PMU, Y-N phase to earth fault with delayed clearance of 1200ms is observed. In antecedent condition, 400kV Sultanpur-Tanda ckt, 400 KV Obra_B-Sultanpur (UP) Ckt-1, 400/220kV 315MVA ICT-1, ICT-3 and 400/220kV 240MVA ICT-2 were carrying 48MW, 275MW, 84MW, 83MW & 60MW respectively.	0	0	0	0	0.000	0.000	25861	31121	1200
3 Hours 11 Minutes	At 00:53Hrs, DT received at Rosa end of 400 KV Badaune(UP)-Rosa(UPC) (OCBTL) Ckt-1 (connected to 400kV Bus-1) and LBB operated. With the operation of LBB of 400 KV Badaune(UP)-Rosa(UPC) (OCBTL) Ckt-1, 400/220 kV 200 MVA ICT 1 at Rosa(UPC) and bus coupler tripped. As per PMU, no fault is observed. In antecedent condition, 400 KV Badaune(UP)-Rosa(UPC) (OCBTL) Ckt-1 & 400/220 kV 200 MVA ICT 1 at Rosa(UPC) were carrying 19MW each.	0	0	0	0	0.000	0.000	23802	27511	NA
1 Hours 26 Minutes	At 01:35 Hrs, 400 KV Kota(PG)-Merta(RS) (PG) Ckt-1 tripped on B-N phase to earth fault. At the same time, 400 KV RAPS_D(NP)-Kota(PG) (PG) Ckt-1 also tripped in Z-3 from Kota(PG) end. As per PMU, B-N fault with delayed clearance of 1480mS is observed. In antecedent condition, 400 KV Kota(PG)-Merta(RS) (PG) Ckt-1 and 400 KV RAPS_D(NP)-Kota(PG) (PG) Ckt-1 were carrying 60MW & 68MW respectively.	0	0	0	0	0.000	0.000	23660	26608	1480
1 Hours 36 Minutes	At 04:23 Hrs, 400/220 kV 315 MVA ICT 1, ICT 2 & ICT 3 at Samba(PG) all tripped on Over flux protection operation. As per PMU, no fault is observed. In antecedent condition, Bus voltage at 400kV & 220kV side was 434kV & 243kV respectively and 400/220 kV 315 MVA ICT 1, ICT 2 & ICT 3 at Samba(PG) were carrying approx. 24MW each.	0	0	0	0	0.000	0.000	21410	23717	NA
1 Hours 27 Minutes	At 18:38 Hrs, 220 KV Dhauliganga(NH)-Bareilly(UP) (PG) Ckt-1 tripped on B-N phase to earth fault, fault occurred due to sparking in B-phase line isolator at Bareilly(UP). At the same time, 220 KV Pithoragarh(PG)-Bareilly(UP) (PG) Ckt-1, 220kV Bareilly- Dohna(UP) ckt-1&2 and 220 Bareilly-Shahjhanpur(UP) ckt tripped on Z-4 distance protection operation. With the tripping of these lines 220 KV Dhauliganga(NH)-Pithoragarh(PG) (PG) Ckt-1 and all four units at Dhauliganga HEP tripped. As per PMU, B-N phase to earth fault with delayed clearance of 240ms is observed. As per SCADA, load loss of approx. 70MW is observed in Uttarakhand control area and generation loss of approx. 275MW of Dhauliganga HEP. In antecedent condition, 220 KV Dhauliganga(NH)-Bareilly(UP) (PG) Ckt-1, 220 KV Pithoragarh(PG)-Bareilly(UP) (PG) Ckt-1 and 220 KV Dhauliganga(NH)-Pithoragarh(PG) (PG) Ckt-1 were carrying 93MW, 60MW & 180MW respectively.	0.59	0.101	275	70	0.674	0.136	40797	51296	240
1 Hours 4 Minutes	At 02:20 Hrs, 400 KV Muradnagar_2-Mathura (UP) Ckt-1 tripped on R-N phase to earth fault, fault was in Zone-1, distance 105.3km and fault current was 2.763kA from Mathura(UP). At the same time, 400 KV Dadri(NT)-Muradnagar_2(UP) (PG) Ckt-1 also tripped on over voltage protection operated at Muradnagar_2 end and DT received at Dadri end. With the tripping of 400 KV Dadri(NT)-Muradnagar_2(UP) (PG) Ckt-1 which was the only source to 400kV Bus-1 & Bus 2 of 400/220kV Dadri(NT)(Bus sectionliser was in open condition at 400kV Dadri), 400kV Dadri(NT)-panipat ckt-1 tripped on over voltage. As other lines at 400kV Bus-1& Bus-2 were already in out condition, both bus1&2 became dead. As per PMU, B-N phase to earth fault is observed. In antecedent condition, 400 KV Mathura-Muradnagar_2(UP) Ckt-1 and 400 KV Muradnagar_2(UP)-Dadri(NT) (PG) Ckt-1 were carrying 193MW & 207MW respectively.	0	0	0	0	0.000	0.000	23346	29476	80

Duration	Event *(As reported)*	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)
				Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
2 Hours 39 Minutes	At 05:04 Hrs, 400 KV Unnao-Panki (UP) Ckt-1 tripped on B-N phase to earth fault. At the same time, 400/220 kV 315 MVA ICT 2 at Unnao(UP), 220kV Unnao-Kanpur Road ckt and 220kV Unnao-BTHOR ckt tripped on bus bar protection operation of 220kV Bus-1 at 400/220kV Unnao(UP). As per PMU, B-N phase to earth fault is observed. In antecedent condition, 400 KV Unnao-Panki (UP) Ckt-1 and 400/220 kV 315 MVA ICT 2 at Unnao(UP) were carrying 15MW & 65MW respectively.	0	0	0	0	0.000	0.000	24828	32993	80
5 Hours 52 Minutes	At 23:19 Hrs, 400 KV Bassi(PG)-Heerapura(RS) (PG) Ckt-2 tripped on DT received from Bassi end. At the same time, 400/220 kV 250 MVA ICT 2 at Heerapura(RS) also tripped on Bus bar protection of 400kV bus-1 at Heerapura(RS). As per PMU, Y-N phase to earth fault is observed. In antecedent condition, 400/220 kV 250 MVA ICT 2 at Heerapura(RS) was carrying 63MW.	0	0	0	0	0.000	0.000	26490	34674	80
2 Hours 18 Minutes	At 17:51 Hrs, 400 KV Tanda(NT)-Basti(UP) (UP) Ckt-1 tripped on Y-N phase to earth fault with fault distance 52.07km & fault current 3.6kA from Basti(UP) end and 400 KV Tanda(NT)-Basti(UP) (UP) Ckt-2 tripped on R-N phase to earth fault with fault distance 43.8km & fault current 3.44kA from Basti(UP) end. At the same time, 125MVAR Bus reactor-1 at Tanda(NT) and 400/11kV ST-4 at Tanda(NT) also tripped. As per PMU, Y-N phase to earth fault is observed. In antecedent condition, 400 KV Tanda(NT)-Basti(UP) (UP) Ckt-1 & Ckt-2 were carrying 32MW & 27MW respectively.	0	0	0	0	0.000	0.000	40582	51484	80
2 Hours 44 Minutes	At 20:32 Hrs, 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1 tripped on R-B-N phase to phase fault, fault distance was approx. 410km from Unnao end. At the same time, 765 KV Anpara_C(LAN)-Anpara_D(UP) (UP) Ckt-1 tripped from Anapra_D end only. As per PMU, R-B phase to phase fault is observed. In antecedent condiion, 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1 and 765 KV Anpara_C(LAN)-Anpara_D(UP) (UP) Ckt-1 were carrying 872MA & 118MW respectively.	0	0	0	0	0.000	0.000	35061	46031	80
1 Hours 37 Minutes	At 04:58 Hrs, 400 KV Kala Amb(PKTL)-Wangto_GIS(HP) (HPPTCL) Ckt-1 tripped on R-N phase to earth fault. Fault distance and fault current were 3.8kA and 67.69km from Wangtoo(HP) end. At the same time, 400 KV Nathpa Jhakri(SJ)-Karcham Wangtoo(JSW) (HBPCL) Ckt-1 and 400 KV Baspa(JP)-Karcham Wangtoo(JSW) (HBPCL) Ckt-1 both tripped on Over voltage protection operation at Karcham Wangtoo(JSW) end and DT received at remote ends. As per PMU, R_N phase to earth fault is observed. In antecedent condition, bus voltage at Karcham Wangtoo(JSW) was 436kV and 400 KV Karcham Wangtoo(JSW)-Nathpa Jhakri(SJ) (HBPCL) Ckt-1 & 400 KV Karcham Wangtoo(JSW)-Baspa(JP) (HBPCL) Ckt-1 were carrying 83MW & 1MW respectively.	0	0	0	0	0.000	0.000	24115	29247	80
3 Hours 8 Minutes	At 12:40 Hrs, 400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1 tripped on Y-phase overcurrent from PGCIL end. At the same time, 400/33 kV 330 MVA ICT 1 at AYANA1 SL_BKN_PG (ARP1PL) also tripped. As per PMU, no fault is observed. As per SCADA, solar generation loss of approx. 210MW at AYANA Solar is observed.	0.63	0	210	0	0.510	0.000	41216	48063	NA
0 Hours 20 Minutes	At 14:16 Hrs, 400 KV Jaipur South-Bassi (PG) Ckt-2 tripped on R-Y fault, fault current and fault distance was 32.525kA & 1.559km and 12.097kA & 35.54km from Bassi and Jaipur South end respectively. a kite thread was found between tower location no. 103-104 during the patrolling and same was removed. At the same time, 400 KV Jaipur South-Bassi (PG) Ckt-1 tripped on R-Y-B fault (fault distance & fault current was 0.8km and 32kA from Bassi end) and 400 KV Bassi(PG)-Heerapura(RS) (PG) Ckt-2 tripped on DT received at Bassi end. Solar generation loss of approx. 1400MW was also observed during the same time. At the same time, 765 KV Bikaner(PG)-Khetri (PKTSL) (BKTL) Ckt-1 & Ckt-2 tripped on Over voltage protection operation at Bikaner end and 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 tripped on Over voltage protection operation at Bhadla2 end. As per PMU, R-Y-B three phase fault followed by rise in voltage is observed. As per SCADA, dip in solar generation of approx. 1400MW is observed (approx. 1150MW connected at Fatehgarh2(PG) and 250MW connected at Bhadla(PG)). As per PMU MW plot, delayed LVRT operation was observed in some of solar plants.	0.16	0	1400	0	3.839	0.000	36468	42495	80

Duration	Event *(As reported)*	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)
				Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
2 Hours 48 Minutes	At 11:45 Hrs, 400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1 tripped on R&B phase overcurrent from ARP1PL end. As per PMU, no fault is observed. As per SCADA, solar generation loss of approx. 180MW is observed. In antecedent condition, 400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1 was carrying 216MW.	0.51	0	180	0	0.401	0.000	44904	52683	NA
3 Hours 33 Minutes	At 12:05 Hrs, 400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1 tripped on R & Y phase overcurrent, Iy=12.5kA, Ir=0.35kA. Fault was at LV side of 400/33kV AYANA(ARP1PL) sub-station. As per PMU, Y-N phase to earth fault is observed. As per SCADA, solar generation loss of approx. 210MW is observed. In antecedent condition, 400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1 was carrying 216MW.	0.74	0	210	0	0.492	0.000	42705	48950	320
3 Hours 04 Minutes	At 17:42 Hrs, 400/220 kV 315 MVA ICT 2 at Mathura(UP) tripped on PRV protection operation due to DC earth fault in Emulsifier system. At the same time, 400/220 kV 500 MVA ICT 3 at Mathura(UP) also tripped on WTI protection operation. Again at 22:29 Hrs, 400/220 kV 315 MVA ICT 2 & 400/220 kV 500 MVA ICT 3 at Mathura(UP) tripped on PRV protection & WTI protection respectively. As per PMU, no fault is observed.	0	0	0	0	0.000	0.000	41846	48478	NA
0 Hours 15 Minutes	At 18:13 Hrs, 400/220 kV 315 MVA ICT 2 at Obra_B(UP) & 400/220 kV 240 MVA ICT 3 at Obra_B(UP) both tripped on over current protection operation. As per PMU, no fault is observed. As per SCADA, load loss of approx. 350MW is observed. 400/220 kV 315 MVA ICT 1 at Obra_B(UP) is under shutdown since 7th August 2021. In antecedent condition, 400/220 kV 315 MVA ICT 2 at Obra_B(UP) was carrying 305MW.	0	0.09	0	350	0.000	0.662	43197	52906	NA
3 Hours 40 Minutes	400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1 tripped on Y phase overcurrent from ARP1PL end. As per PMU, no fault is observed. As per SCADA, solar generation loss of approx. 208MW is observed. In antecedent condition, 400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1 was carrying 216MW.	0.76	0	208	0	0.459	0.000	45304	53006	NA
0 Hours 34 Minutes	At 11:27:43:400 Hrs, 240MVAR Bus reactor-2 was opened. With the opening of bus reactor, transient voltage shoot up is observed at Fatehgarh2(PG). As per PMU at Fatehgarh2(PG), phase voltage of 400kV Fatehagrh2-Fatehgarh ckt-2 shoot up from 226kV to 259kV and came back to 239kV within 520ms. Further within 500ms, solar generation loss at Renew Sunwave and EDEN solar is observed. Further after 3sec, 220/33kV transformers at Renew Solar Urja tripped. Further within 3-4 sec Renew Sunbright and some inverters of AHEJ2L, AHEJ3L, Renew jharkhand3 and RE generation at ADANI pooling substation tripped. Total solar generation loss of around 2038MW is observed. Tripping of 765kV Fatehgarh2-Bhadla2 ckt-1 and 400kV Fatehgarh2-Fatehgarh ckt-1 also observed on over voltage protection operation at Fatehgarh2 end. In antecedent condition, as per SCADA, bus voltages at Fatehgarh2 were 816kV, 428kV & 235kV at 765kV, 400kV & 220kV bus respectively.	1.15	0	2038	0	3.923	0.000	51950	51950	NA

Northern Regional inter regional lines tripping for December-21

Annexure-I

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	220 KV Modak(RS)-Bhanpura(MP) (MPSEB) Ckt-1	MPSEB	7-Jan-22	22:12	Nil	Y-N fault, Zone-1, Dist. 6.62km, Fault current 6.255kA from Modak(RS).	NA	8-Jan-22	13:03	NA	Yes(After 24Hrs)	Yes(After 24Hrs)			From PMU, Y-N fault is observed in the system and unsuccessful auto-reclosing is observed.
2	400 KV Balia-Patna (PG) Ckt-1	POWERGRID	12-Jan-22	14:45	Nil	Line tripped from Ballia end on M-1 Zone-3 operated. Line remained charged from Patna end.	NA	12-Jan-22	15:18	NA	NO	NO	Details of the tripping yet to be received.	A/R needs to be checked and corrected.	From PMU, Y-N fault is observed in the system and auto-reclosing not observed.
3	400 KV Gorakhpur(PG)-Muzaffarpur(PG) (POWERLINK) Ckt-2	POWERLINK	15-Jan-22	12:00	Nil	R-Y fault.	NA	15-Jan-22	17:26	NO	Yes	Yes	NA		From PMU, R-Y fault is observed in the system.
4	400 KV Varanasi-Biharshariff (PG) Ckt-2	POWERGRID	17-Jan-22	15:54	Nil	R-Y fault.	NA	17-Jan-22	18:15	NO	Yes(After 24Hrs)	Yes(After 24Hrs)	NA		From PMU, R-Y fault is observed in the system.
5	400 KV Varanasi-Biharshariff (PG) Ckt-2	POWERGRID	18-Jan-22	5:28	Nil	R-N Fault , FD= 181.75KM; FC = 2.26KA from Varanasi end.	NA	18-Jan-22	7:30	NA	Yes(After 24Hrs)	Yes(After 24Hrs)			From PMU, R-N fault is observed in the system and unsuccessful auto-reclosing is 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 Jan 2022 - 31st Jan 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	AHEJ3L	4	4	**100**	4	0	**100**	4	0	**100**	4	0	**100**
2	ANTA-NT	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
3	AP43L	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
4	ARP1PL	5	2	**40**	2	0	**40**	2	0	**40**	2	0	**40**
5	AURAIYA-NT	2	0	**0**	1	1	**100**	1	0	**50**	1	0	**50**
6	BAIRASUIL-NH	8	5	**63**	5	1	**71**	5	1	**71**	5	1	**71**
7	BBMB	30	9	**30**	9	12	**50**	9	15	**60**	9	10	**45**
8	BUDHIL	3	3	**100**	1	0	**33**	2	0	**67**	3	0	**100**
9	CHAMERA-III-NH	3	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
10	CHAMERA-II-NH	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
11	CPCC1	57	4	**7**	4	8	**8**	7	6	**14**	4	3	**7**
12	CPCC2	31	0	**0**	1	2	**3**	2	2	**7**	8	0	**26**
13	CPCC3	20	5	**25**	5	5	**33**	5	5	**33**	5	0	**25**
14	DADRI-NT	10	0	**0**	0	5	**0**	0	5	**0**	0	3	**0**
15	DHAULIGANGA-NH	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
16	EDEN (ERCPL)	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
17	FBTL	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
18	INDIGRID	9	0	**0**	0	4	**0**	0	4	**0**	9	0	**100**
19	KARCHAM	8	0	**0**	0	0	**0**	0	0	**0**	8	0	**100**
20	NJPC	6	0	**0**	0	0	**0**	0	0	**0**	6	0	**100**
21	PKTSL	3	1	**33**	1	2	**100**	2	1	**100**	1	0	**33**
22	RAILWAYS	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
23	RAPPA	15	1	**7**	15	0	**100**	15	0	**100**	15	0	**100**
24	RAPPB	5	1	**20**	4	0	**80**	4	0	**80**	4	0	**80**
25	RAPPC	1	1	**100**	0	0	**0**	1	0	**100**	1	0	**100**
26	SHREE CEMENT	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
27	SINGRAULI-NT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
28	SLDC-DV	23	5	**22**	9	5	**50**	11	4	**58**	9	0	**39**
29	SLDC-HP	14	0	**0**	1	8	**17**	1	4	**10**	0	0	**0**
30	SLDC-HR	9	1	**11**	0	1	**0**	0	1	**0**	1	0	**11**
31	SLDC-JK	6	0	**0**	6	0	**100**	6	0	**100**	2	1	**40**
32	SLDC-PS	30	7	**23**	10	15	**67**	11	14	**69**	26	1	**90**
33	SLDC-RS	104	0	**0**	29	0	**28**	29	0	**28**	28	0	**27**
34	SLDC-UK	7	7	**100**	7	0	**100**	7	0	**100**	7	0	**100**
35	SLDC-UP	125	14	**11**	18	23	**18**	17	17	**16**	17	5	**14**
36	SORANG	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**
37	TANAKPUR-NH	3	1	**33**	1	0	**33**	1	0	**33**	1	0	**33**
38	TANDA-NT	3	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
39	UNCHAHAR-NT	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**

Util_unique	Total	FIR_T	FIR_D	FIR_N	FIR_NA	DR_T	DR_D	DR_N	DR_NA	EL_T	EL_D	EL_N	EL_NA	TR_T	TR_D	TR_N	TR_NA
AHEJ3L	4	0	0	4	0	0	0	4	0	0	0	4	0	0	0	4	0
ANTA-NT	2	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0
AP43L	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
ARP1PL	5	0	0	5	0	0	0	5	0	0	0	5	0	0	0	5	0
AURAIYA-N	2	1	1	0	0	0	0	1	1	1	0	1	0	1	0	1	0
BAIRASUIL-	8	2	1	5	0	2	0	5	1	2	0	5	1	2	0	5	1
BBMB	30	7	14	9	0	5	4	9	12	4	2	9	15	7	4	9	10
BUDHIL	3	0	0	3	0	2	0	1	0	1	0	2	0	0	0	3	0
CHAMERA-I	3	0	3	0	0	0	3	0	0	0	3	0	0	0	3	0	0
CHAMERA-I	2	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0
CPCC1	57	11	42	4	0	11	34	4	8	11	33	7	6	13	37	4	3
CPCC2	31	0	31	0	0	2	26	1	2	2	25	2	2	0	23	8	0
CPCC3	20	4	11	5	0	3	7	5	5	3	7	5	5	7	8	5	0
DADRI-NT	10	5	5	0	0	3	2	0	5	3	2	0	5	4	3	0	3
DHAULIGAI	2	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0
EDEN (ERCI	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
FBTL	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
INDIGRID	1	1	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0
KARCHAM	8	2	6	0	0	1	7	0	0	1	7	0	0	0	0	8	0
NJPC	6	3	3	0	0	3	3	0	0	3	3	0	0	0	0	6	0
NLDC	18	0	1	17	0	0	1	17	0	0	0	18	0	0	1	17	0
PKTSL	3	0	2	1	0	0	0	1	2	0	0	2	1	0	2	1	0
RAILWAYS	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
RAPPA	15	6	8	1	0	0	0	15	0	0	0	15	0	0	0	15	0
RAPPB	5	3	1	1	0	0	1	4	0	0	1	4	0	0	1	4	0
RAPPC	1	0	0	1	0	0	1	0	0	0	0	1	0	0	0	1	0
SHREE CEM	2	0	0	2	0	0	0	2	0	0	0	2	0	0	0	2	0
SINGRAULI-	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
SLDC-DV	23	1	17	5	0	8	1	9	5	6	2	11	4	7	7	9	0
SLDC-HP	14	3	11	0	0	3	2	1	8	3	6	1	4	5	9	0	0
SLDC-HR	9	2	6	1	0	4	4	0	1	4	4	0	1	4	4	1	0
SLDC-JK	6	3	3	0	0	0	0	0	6	0	0	0	6	0	3	2	1
SLDC-PS	30	9	14	7	0	3	2	10	15	3	2	11	14	3	0	26	1
SLDC-RS	104	20	84	0	0	7	68	29	0	7	68	29	0	10	66	28	0
SLDC-UK	7	0	0	7	0	0	0	7	0	0	0	7	0	0	0	7	0
SLDC-UP	125	50	61	14	0	54	30	18	23	58	33	17	17	62	41	17	5
SORANG	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
STERLITE	8	5	3	0	0	2	2	0	4	3	1	0	4	0	0	8	0
TANAKPUR	3	0	2	1	0	1	1	1	0	1	1	1	0	1	1	1	0
TANDA-NT	3	0	3	0	0	1	2	0	0	1	2	0	0	1	2	0	0
UNCHAHAI	1	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड
(भारत सरकार का उद्यम)
POWER SYSTEM OPERATION CORPORATION LIMITED
(A Govt. of India Enterprise)
उत्तरी क्षेत्रीय भार प्रेशण केन्द्र / NORTHERN REGIONAL LOAD DESPATCH CENTRE
कार्यालय : 18-ए, शहीद जीत सिंह सनसनवाल मार्ग, कटवारिया सराय, नई दिल्ली- 110016
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CIN : U40105DL2009GOI188682, Website : www.nrldc.org, www.nrldc.in, Tel.: 011- 26519406, 26523869, Fax : 011- 26852747

संदर्भ: उ क्षे भा प्रे के \TS-48\ दिनांक: 31 जनवरी 2022

सेवा में,

सूचि के अनुसार

विषय: दस्तावेज़ 'System Restoration Procedures (SRP) for Northern Region' के नवीकरण बाबत।

महोदय,

उ.क्षे.भा.प्रे.के के पत्र NRLDC/TS-48/ दिनांकित 04 जनवरी 2022 एवं उत्तर क्षेत्र की 188,189 एवं 190 वी प्रचालन समिति (OCC) की बैठक मे चर्चा के बाद आपके सुझावो/टिप्पणियो के आधार पर उपरोक्त दस्तावेज़ का नवीकरण Indian Electricity Grid Code (IEGC) के 5.2 (p) व 5.8 प्रावधानो के अनुपालन मे किया गया है। यह दस्तावेज़, 31 जनवरी 2022 से उपयोग के लिए निम्न लिंक पर उ.क्षे.भा.प्रे.के की वैबसाइट पर उपलब्ध है।

https://nrldc.in/documents/

उपरोक्त दस्तावेज़ पासवर्ड सुरक्षित है एवं पासवर्ड: **SRP@2022** है।

इस दस्तावेज़ के नवीकरण मे आपके सहयोग एवं सहायता के लिए उ.क्षे.भा.प्रे.के आपका आभारी है। हमे विश्वास है कि यह ग्रिड पुनर्स्थापना की आवश्यकता पड़ने की दशा मे सहायक सिद्ध होगा।

हम आशा करते है कि इसके संशोधन एवं इसको और अधिक प्रभावी बनाने के लिए आपके सुझाव व टिप्पणिया सदैव मिलते रहेगे एवं वह सदैव सादर आमंत्रित है।

धन्यवाद,

भवदीय

सुरजीत

(सुरजीत बनर्जी)
मुख्य महाप्रबंधक
उ॰क्षे॰भा॰प्रे॰के

प्रतिलिपि सादर सूचनार्थ : 1. अध्यक्ष एवं प्रबंध निदेशक, पोसोको, नई दिल्ली

2. निदेशक (एस ओ), पोसोको, नई दिल्ली