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/106/01/2022/7228-7269 दिनांक: 12.08.2022

विषय: प्रचालन समन्वय उप-समिति की198वीं बैठक की कार्यसूची।

Subject: Agenda of 198th OCC meeting.

प्रचालन समन्वय उप-समिति की **198वीं** बैठक का आयोजन वीडियो कॉन्फ्रेंसिंग के माध्यम से दिनांक **17.08.2022** 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।

198th meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **17.08.2022** from **10:30 Hrs**. The agenda of this meeting has been uploaded on the NRPC web-site http://164.100.60.165.

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

Kindly make it convenient to attend the meeting.

12/08/2022.

(सौमित्र मजूमदार)
अधीक्षण अभियंता (प्रचालन)

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

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1. Confirmation of Minutes

The minutes of the 197th OCC meeting were issued vide letter of even number dated 05.08.2022.

Sub-committee may deliberate and kindly confirm the Minutes.

2. Review of Grid operations

2.1 Power Supply Position (Provisional) for July 2022

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

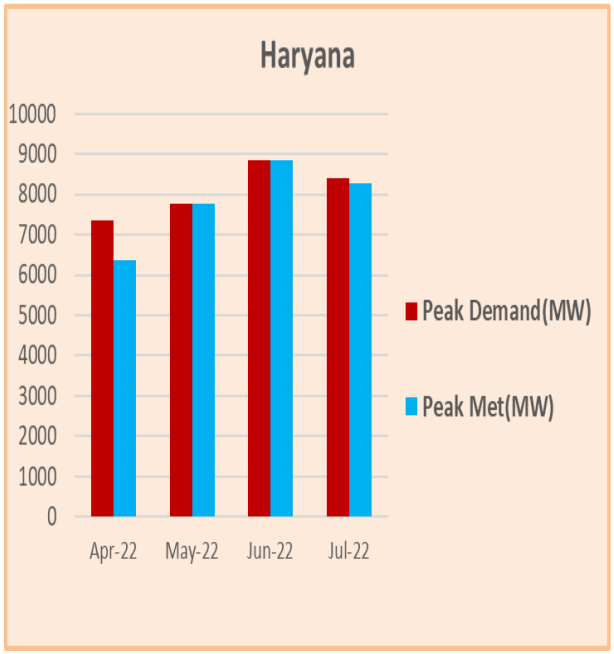
State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	200	203	1.7%	430	398	-7.4%
	(Req)	200	203	1.7%	440	398	-9.5%
DELHI	(Avl)	5076	3905	-23.1%	8200	7517	-8.3%
	(Req)	4030	3905	-3.1%	8200	7517	-8.3%
HARYANA	(Avl)	5770	6478	12.3%	11700	12327	5.4%
	(Req)	6991	6493	-7.1%	12700	12327	-2.9%
HIMACHAL PRADESH	(Avl)	1104	997	-9.6%	1700	1732	1.9%
	(Req)	1109	1007	-9.2%	1727	1732	0.3%
J&K and LADAKH	(Avl)	2150	1534	-28.7%	3550	2718	-23.4%
	(Req)	1690	1535	-9.2%	2610	2718	4.1%
PUNJAB	(Avl)	7650	8138	6.4%	14200	14058	-1.0%
	(Req)	8590	8138	-5.3%	15320	14058	-8.2%
RAJASTHAN	(Avl)	9250	7243	-21.7%	18050	12332	-31.7%
	(Req)	8630	7263	-15.8%	14790	12332	-16.6%
UTTAR PRADESH	(Avl)	15810	14855	-6.0%	26000	25951	-0.2%
	(Req)	15500	14962	-3.5%	26000	25951	-0.2%
UTTARAKHAND	(Avl)	1333	1422	6.7%	2316	2342	1.1%
	(Req)	1380	1458	5.7%	2350	2342	-0.3%
NORTHERN REGION	(Avl)	48342	44774	-7.4%	76600	74100	-3.3%
	(Req)	48119	44963	-6.6%	77000	74700	-3.0%

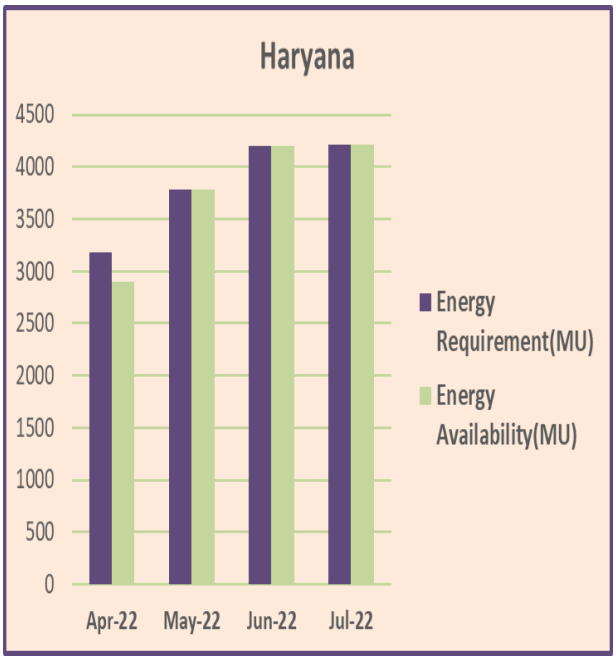
As per above, negative / significant variation (≥5%) in Actual Power Supply Position (Provisional) vis-à-vis Anticipated figures is observed for the month of July-2022 in terms of Energy Requirement for Delhi, Haryana, HP, UTs of J&K and Ladakh, Punjab, Rajasthan, UP and Uttarakhand and in terms of Peak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

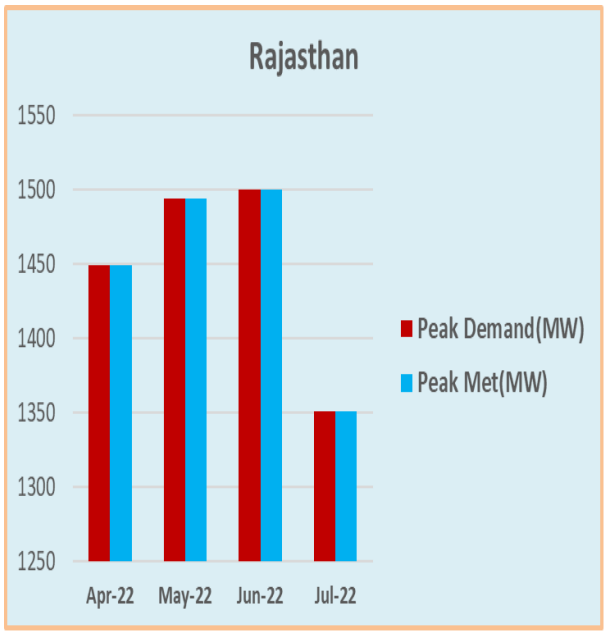
All SLDCs are requested to furnish provisional and revised power supply position in prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively for the compliance of Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.

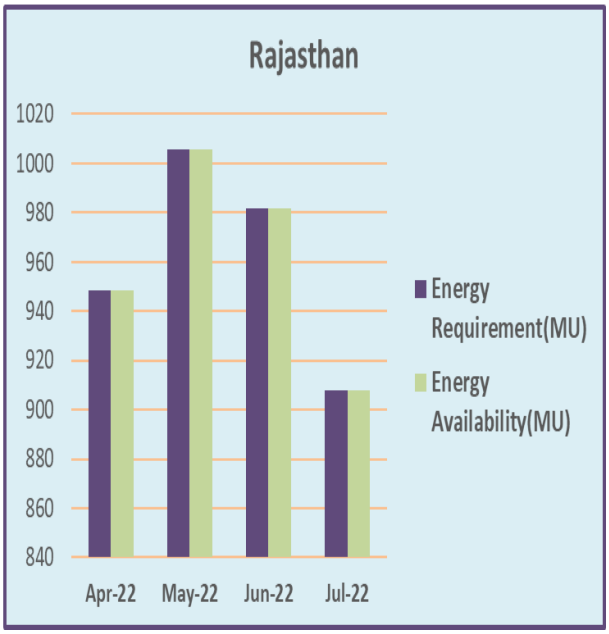
2.2 Power Supply Position of NCR

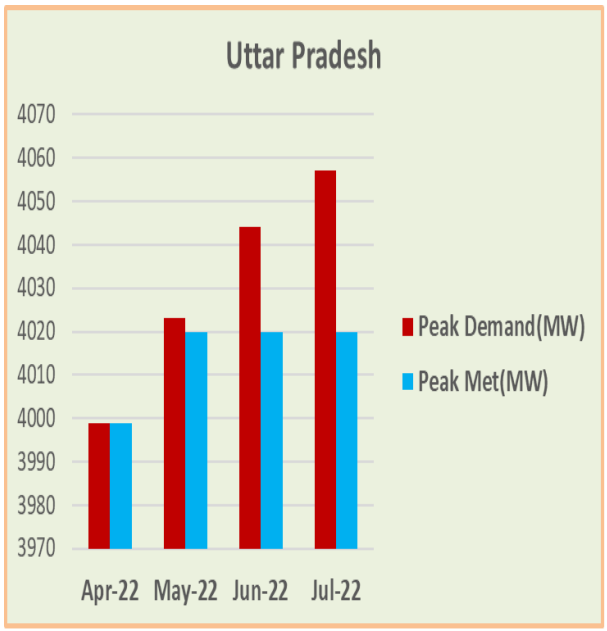
NCR Planning Board (NCRPB) is closely monitoring the power supply position of National Capital Region. Monthly power supply position for NCR till the month of July-2022 is available on NRPC website (http://164.100.60.165). Power supply position during the current financial year is shown as under:

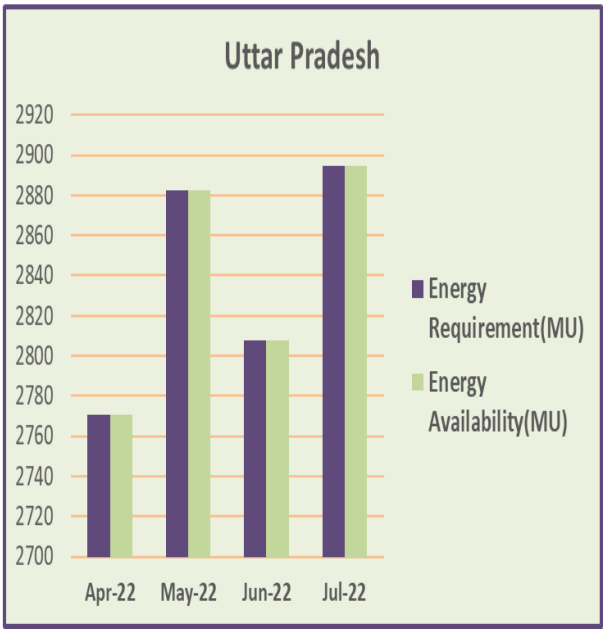


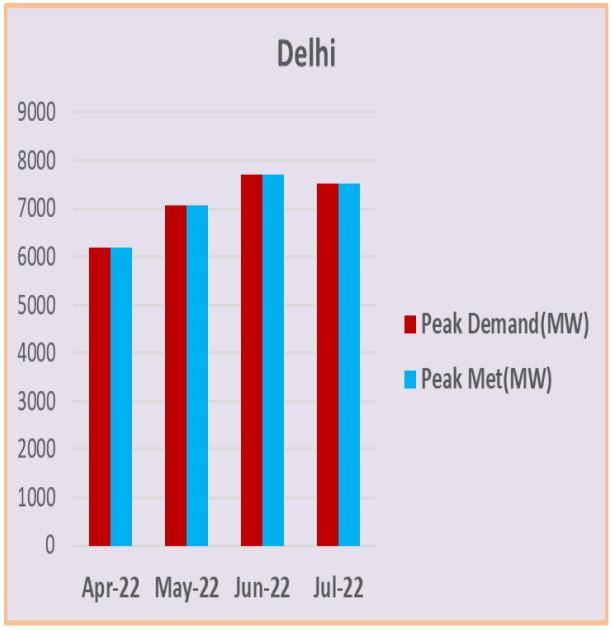


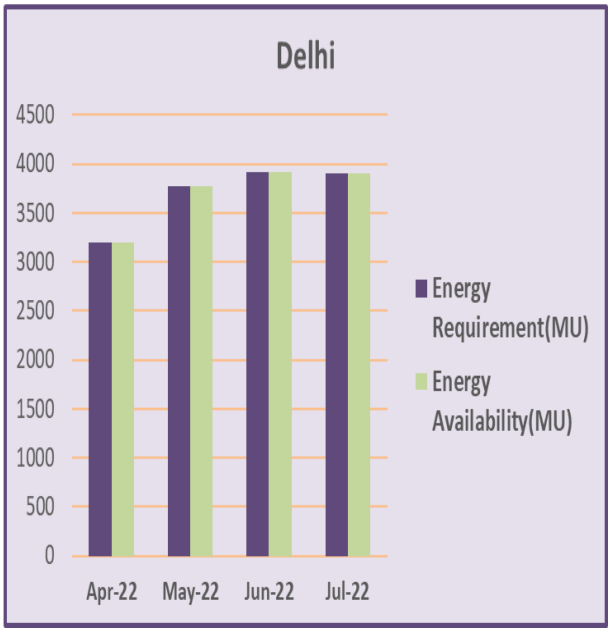












3. Maintenance Programme of Generating Units and Transmission Lines

3.1. Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of September-2022 is scheduled on 16-August-2022 via Video Conferencing.

3.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of September-2022 is scheduled on 16-August-2022 via Video conferencing.

4. Planning of Grid Operation

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

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	180	420	No Revision submitted
	Requirement	150	410	
	Surplus / Shortfall	30	10	
	% Surplus / Shortfall	20.0%	2.4%	
DELHI	Availability	2640	6140	No Revision submitted
	Requirement	3700	6900	
	Surplus / Shortfall	-1060	-760	
	% Surplus / Shortfall	-28.6%	-11.0%	
HARYANA	Availability	5490	11660	No Revision submitted
	Requirement	6860	12160	
	Surplus / Shortfall	-1370	-500	
	% Surplus / Shortfall	-20.0%	-4.1%	
HIMACHAL PRADESH	Availability	1128	1710	6-Aug-22
	Requirement	1042	1695	
	Surplus / Shortfall	86	15	
	% Surplus / Shortfall	8.3%	0.9%	
J&K and LADAKH	Availability	1680	3490	No Revision submitted
	Requirement	1580	2660	
	Surplus / Shortfall	100	830	
	% Surplus / Shortfall	6.3%	31.2%	
PUNJAB	Availability	6210	12110	No Revision submitted
	Requirement	8170	14340	
	Surplus / Shortfall	-1960	-2230	
	% Surplus / Shortfall	-24.0%	-15.6%	
RAJASTHAN	Availability	8680	18610	No Revision submitted
	Requirement	7900	14500	
	Surplus / Shortfall	780	4110	
	% Surplus / Shortfall	9.9%	28.3%	
UTTAR PRADESH	Availability	15000	25500	8-Aug-22
	Requirement	14700	25500	
	Surplus / Shortfall	300	0	
	% Surplus / Shortfall	2.0%	0.0%	
UTTARAKHAND	Availability	1302	2110	6-Aug-22
	Requirement	1290	2160	
	Surplus / Shortfall	12	-50	
	% Surplus / Shortfall	0.9%	-2.3%	
NORTHERN REGION	Availability	42310	75100	
	Requirement	45392	73800	
	Surplus / Shortfall	-3082	1300	
	% Surplus / Shortfall	-6.8%	1.8%	

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of August-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	Mar-2022
HARYANA	Apr-2018	May-2022
HIMACHAL PRADESH	Apr-2018	Jun-2022
PUNJAB	Apr-2018	Mar-2022
RAJASTHAN	Apr-2018	May-2022
UTTAR PRADESH	Apr-2018	Apr-2022
UTTARAKHAND	Apr-2018	Mar-2022

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. 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.

7. NR Islanding scheme

7.1 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.

7.2 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.

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

7.4 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.

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

7.6 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.

7.7 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.

7.8 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.

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

7.10 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.

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

7.12 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.

7.13 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.

7.14 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.

7.15 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.

7.16 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.

7.17 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.

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

7.19 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.

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

7.21 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.

7.22 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.

7.23 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.

7.24 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.

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

7.26 A meeting was convened by UPSLDC with officials of NRPC Sectt., NRLDC &

UPPTCL on 07.03.2022 to review progress of implementation of Unchahar and Agra Islanding schemes and MoM of the same is awaited.

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

7.28 Observing slow pace of implementation of Islanding Schemes in NR states, a series of review meetings has been conducted by NRPC Secretariat as detailed below:

State	Meeting Date
Punjab	05/07/2022
Rajasthan	06/07/2022
Uttar Pradesh	07/07/2022
Delhi	13/07/2022
Himachal Pradesh	15/07/2022

States are requested to expedite the submission of data/study results as discussed in meetings above.

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

Members may kindly deliberate.

8. Coal Supply Position of Thermal Plants in Northern Region

8.1 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.

8.2 Accordingly, coal stock position of generating stations in northern region during current month (till 09th August 2022) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	76.03	13	**0.6**
ANPARA TPS	2630	89.00	13	10.0
BARKHERA TPS	90	59.60	21	**1.5**
DADRI (NCTPP)	1820	67.68	21	11.8
GH TPS (LEH.MOH.)	920	32.88	21	32.6
GOINDWAL SAHIB TPP	540	46.84	21	**3.0**
HARDUAGANJ TPS	1265	67.52	21	5.0
INDIRA GANDHI STPP	1500	67.95	21	19.9
KAWAI TPS	1320	80.83	21	9.9
KHAMBARKHERA TPS	90	60.95	21	**1.2**
KOTA TPS	1240	57.16	21	11.6
KUNDARKI TPS	90	57.80	21	**2.7**
LALITPUR TPS	1980	74.07	21	**2.7**

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
MAHATMA GANDHI TPS	1320	82.24	21	7.1
MAQSOODPUR TPS	90	56.47	21	**1.0**
MEJA STPP	1320	31.55	21	8.9
OBRA TPS	1094	55.80	21	**2.1**
PANIPAT TPS	710	86.77	21	4.5
PARICHHA TPS	1140	54.12	21	**3.8**
PRAYAGRAJ TPP	1980	79.37	21	11.1
RAJIV GANDHI TPS	1200	69.48	21	6.9
RAJPURA TPP	1400	85.32	21	31.3
RIHAND STPS	3000	93.42	13	24.7
ROPAR TPS	840	49.50	21	38.0
ROSA TPP Ph-I	1200	73.25	21	**1.1**
SINGRAULI STPS	2000	94.34	13	17.0
SURATGARH TPS	1500	43.43	21	21.4
TALWANDI SABO TPP	1980	69.91	21	8.2
TANDA TPS	1760	73.10	21	15.5
UNCHAHAR TPS	1550	73.82	21	13.4
UTRAULA TPS	90	60.67	21	**2.1**
YAMUNA NAGAR TPS	600	83.79	21	20.5
CHHABRA-I PH-1 TPP	500	46.09	21	**1.6**
KALISINDH TPS	1200	77.71	21	7.5
SURATGARH STPS	1320	0.00	21	5.9
CHHABRA-I PH-2 TPP	500	44.75	21	28.6
CHHABRA-II TPP	1320	66.91	21	8.9

9. Assessment and usability of the interstate lines i.e 220 KV S/C MIA (Alwar) – BTPS (Badarpur) line and 132 KV S/C Hisar-Sadulpur (Rajgarh) (Agenda by RRVPNL)

9.1 RRVPNL vide letter dtd. 08/07/2022 (**Annexure-A.III**) has submitted that interstate lines i.e., 220 KV S/C MIA (Alwar)-BTPS (Badarpur) and 132 KV S/C Hisar-Sadulpur (Rajgarh) lines are very old and the-line condition is deteriorating day by day resulting in frequently breaking of the conductor and its accessories.

9.2 Yearly transmission charges (YTC) allowed by CERC in petition no. 362/TT/2019 for the line 220 KV S/C MIA (Alwar)-BTPS (Badarpur) is Rs.64.02 Lakh. The refurbishment work of line as R&M requires Rs.9.89 Cr and still after spending Rs.9.89 Cr, only half of the line is refurbished.

9.3 YTC allowed by CERC in petition no. 362/TT/2019 for the said line is Rs.37.94 Lakh.

The YTC allowed is only towards O&M expenses and interest on working capital as useful life of 25 years has already been over. The work of replacement of line conductor with associated hardware, disc insulator, etc. requires estimated cost amounting Rs. 7.021 crores.

9.4 Based on above facts, following points need to be deliberated:

i. Assessment & usability of these Interstate lines i.e 220 KV S/C MIA (Alwar)-BTPS (Badarpur) line and 132 KV S/C Hisar-Sadulpur (Rajgarh) line.

ii. Recovery of capital expenditure on renovation and refurbishment through YTC for these Interstate lines, in case NRPC decides to retain these interstate line.

Members may kindly deliberate.

10. Deemed Enhancement of ATC/TTC for Punjab due to unprecedented load growth of summer/paddy season. (Agenda by PSTCL)

10.1 The demand of the state during the current paddy season has been recorded as 14,208 MW by the SLDC which has been met successfully with ATC/TTC limits of 8500/9000 and full generation at 400 KV/220/132kV generating nodes. In order to meet the state demand, ATC limit is required to be increased to at least 10,000 MW (for paddy 2023).

10.2 State distribution utility PSPCL has informed that there will be no significant addition of generation within the State in the coming year. State of Punjab has to deal with peculiar load profile wherein demand is nearly double during Paddy season i.e., June to September than that during the rest of the year.

10.3 The peak demand for next summer/paddy season is projected as 15,500 to 16,000 MW, which is likely to reach up to 18,000 MW by the year 2025. Hence, to meet the increasing power demand, immediate enhancement of ATC/TTC limits up to 10,000/10,500 MW and subsequently to 12,000 MW in the next 3 years is required.

10.4 Punjab is bringing the following 400 kV substations in the upcoming years:

Sr. No.	Substation name and installed capacity	ISTS connectivity	Approved in	Timeline (MM/YYYY)
1.	**400 kV Dhanansu** **Stage 1:** 1X315 MVA, 400/220 kV ICT	LILO of 1 circuit of 400 kV Jalandhar – Kurukshetra line	3rd NRSCT meeting held on 24.05.2019.	09/2023
	Stage 2: 1X315 MVA + 1X500 MVA, 400/220 kV ICTs	LILO of 1 circuit of 400 kV Nakodar – Kurukshetra line	Meeting held with CEA on 18.11.2021 through VC.	
2.	**400 kV Ropar** **Stage 1:** 2X500 MVA, 400/220 kV ICTs	LILO of 1 circuit of 400 kV Ludhiana – Koldam line	43rd TCC/46th NRPC meeting dated 24.09.2019.	12/2023

Sr. No.	Substation name and installed capacity	ISTS connectivity	Approved in	Timeline (MM/YYYY)
		Stage 2: LILO of 1 circuit of 400 kV Ludhiana – Koldam (via Nanje) line	Meeting to deliberate the transmission system for Luhri HEP dated 21.01.2022.	
3.	**<u>400 kV Behman Jassa Singh</u>** Switching station with 2X500 MVA, 400/220 kV ICTs	LILO of 400 kV Talwandi Sabo – Moga line	40th meeting of Standing committee on Power System Planning of Northern Region dated 22.06.2018	12/2025
		LILO of 400 kV Talwandi Sabo – Nakodar line		

10.5 In addition to the above, the 2 Nos. 315 MVA ICTs at 400 kV Nakodar shall be augmented to 500 MVA as per the following timeline (MM/YYYY):

1. Augmentation of 1st 315 MVA, 400/220 kV ICT: 05/2024
2. Augmentation of 2nd 315 MVA, 400/220 kV ICT: 09/2024

10.6 Moreover, Punjab is in the process of finalizing MYT for 3rd control period (2023 – 26) wherein the following new 400 kV projects are being proposed:

1. 400 kV substation Wadala Granthain with ISTS connectivity through LILO of 765 kV Moga – Kishanpur line (which is presently charged at 400 kV).
2. 4th 500 MVA, 400/220 kV ICT at 400 kV Rajpura.
3. Double circuit line between 400 kV Patran (TBCB) and 400 kV Dhuri after commissioning of 3rd 500 MVA ICT at 400 kV Patran in the year 2025.

10.7 Once these projects are approved by the PSERC, agenda will be submitted separately before the NRPC along with load flow studies.

10.8 It is pertinent to mention that the following works on the part of Punjab are also under execution/completed:

1. 400 kV Rajpura – 220 kV Gobindgarh HTLS (Already under execution and approved in MYT)
2. Shifting of 220 kV Patti and 220 kV Rashiana circuits from 220 kV Verpal to 400 kV Amritsar, already under execution.
3. 400 kV Ludhiana – 220 kV Lalton Kalan HTLS, already completed.
4. Bypassing of 220 kV Dhandari Kalan from 220 kV Lalton Kalan to 400 kV PGCIL Ludhiana which will further de-load the 400 kV PGCIL Ludhiana – 220 kV Lalton Kalan line.

10.9 For the upcoming paddy season 2023, load flow studies have been carried out and it is proposed to plan the following Transmission works at PGCIL sub-stations for

enhancing ATC/TTC limits to 10,000/10,500MW (considering 1000 – 1500 MW annual load growth for FY 2022-23):

Sr. No.	Name of the substation	Description of Works	Timeline for completion
1.	400 kV PGCIL Ludhiana	Augmentation of 1 no. 315 MVA (3rd) 400/220 kV ICT to 500 MVA.	May, 2023
2.	400 kV PGCIL Ludhiana	Utilization of existing 220 kV bays for reorientation of 220 kV Lalton Kalan – Dhandari Kalan line to 400 kV PGCIL Ludhiana – Dhandari Kalan. Out of the 2 Nos. existing bays, 1 No.bay stands utilized for 220 kV substation Doraha. 2nd spare bay be utilized for Dhandari Kalan. PGCIL may confirm please.	May, 2023
3.	400 kV PGCIL Moga	Augmentation of 1 no. 250 MVA, 400/220 kV ICT to 500 MVA.	May, 2023
4.	400 kV PGCIL Patiala	2 Nos. 220 KV bays for evacuation of power to 220 KV Bhadson (which is being upgraded from 66 KV substation) Additional 500 MVA ICT is to be installed with a timeline of May, 2023. 2 Nos. 220 kV bays are existing at the PGCIL Patiala substation. PGCIL may confirm utilization of these bays for 220 kV Bhadson please.	May, 2024
5.	400 kV PGCIL Patiala	To control high loading of 220 KV PGCIL Patiala – Bhateri S/C line, it is proposed to terminate the 220 KV PGCIL Patiala – Rajpura S/C line at 220 KV Bhateri making it 220 KV PGCIL Patiala – Bhateri D/C Line	May, 2023
6.	400 KV Panchkula (Barwala)	2 Nos. 220 KV bays for 220 KV Dera Bassi to meet with unprecedented load growth in that area. PGCIL may confirm space for additional 2 Nos. bays please.	May, 2024
7.	400 KV Jalandhar	Two Nos. 220 KV bays for LILO of 220 KV Jalandhar – Butari Line. 2 Nos. bays are available at the substation. PGCIL may confirm please.	May, 2023

Members may kindly deliberate.

11. Adequacy augmenting of Transmission Capacity at 400/220 kV level (Agenda by JKPTCL)

11.1. The JKPTCL envisages Transmission Capacity of 4000 MVA for Kashmir valley by 2025. At present the available Transmission Capacity at 220/132 & 220/33 kV levels is around 2495 MVA thereby creating a shortfall of around 1500 MVA. For the

purpose, various projects are at different stages of execution. The projects include capacity addition by way of augmentation and construction of Grid Sub-Stations at 220/132 kV level by 965 MVA and 220/33 kV level by 870 MVA. To bridge this shortfall, in the first instance it is proposed to augment the Transmission Capacity at 400/220 kV level as detailed below:

1. Augmentation of 400/220 kV GIS Amargarh (Indigrid) from existing 630 MVA to 1260 MVA by addition of another Transformer Bank of 630 MVA.
2. Augmentation of 400/220 kV GSS New Wanpoh (PGCIL) from existing 630 MVA to 1260 MVA by addition of another Transformer Bank of 630 MVA.

Members may kindly deliberate.

12. Conversion of existing conductor to its equivalent HTLS conductor (Agenda by JKPTCL)

12.1. Presently Gladni Grid Sub-station with installed capacity of 710MVA, at 220/132 KV level is being fed at 220KV level through three Single Circuit Transmission lines viz. Salal-Gladni Circuit-I (ACSR Zebra), Salal-Gladni Circuit-II (ACSR Moose) and Jatwal-Gladni Circuit-I (ACSR Zebra), which are at present to cater the load demand of Gladni Grid Station.

12.2. It is further apprised that another 220/33 KV, l60MVA Grid Station is coming up at Chowadi under PMDP-15, for which 220 KV Jatwal Gladni single circuit transmission line shall be looped in and looped out and in that case, there will be very less power flow in this transmission line towards Gladni and thus Gladni would be dependent only on two no. 220 KV single circuits from Salal Generating Station which would not suffice to the demand of Gladni Grid Station. It is in line here to mention that all three above mentioned transmission lines are loaded to the optimum capacity and there is no further scope of loading these lines beyond the thermal limit of the conductor being used in these lines.

Members may kindly deliberate.

13. Modification Issues related to Power System Operation of J&K/Ladakh (Agenda by NRLDC)

13.1. Major issues related to Power system operation in J&K and Ladakh were discussed in detail in 47th TCC and 49th NRPC meetings and special meeting held on 28.07.2020 to deliberate on the issues related to UT of J&K and Ladakh.

13.2. Following issues still persist in J&K and Ladakh control areas:

i. Most of the 220 kV voltage level Substations of PDD-J&K, are being operated with only one Main and transfer bus scheme instead of double main transfer (DMT) bus as per CEA planning criteria and therefore bus shutdown requires shutdown of entire station which affects reliability of power supply.

On 29.05.2022, complete shutdown of 220/132kV Hiranagar substation was taken by JKPTCL as there is only single bus and transfer scheme. This led to

loss of generation at Sewa-II and load loss in Kathua area which could have been avoided if there were double main and transfer scheme available at 220/132kV Hiranagar substation. Same was also communicated vide NRLDC letter dated 28.06.2022 attached as **Annexure-A.IV**. Moreover, there have also been number of other such events previously.

ii. As per the agreed quantum relief for NR, total target in respect of J&K for UFR and df/dt are 336 MW and 270 MW respectively. Confirmation on relief quantum is yet to be received from J&K. Moreover, in compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings. Status is still pending from J&K end.

iii. Two stages (450 MW each) of Baglihar HEP (900 MW) operate on two different buses and are being evacuated through two 400 kV lines connected to two different buses operating in disconnected manner. As a result, although each line has capacity to evacuate power from both stages, under outage of one line, there is loss of one stage generation i.e 450 MW. UT-J&K to expedite the coupling of two buses of Baghlihar stage-1 & 2 to minimize the probability of generation loss.

iv. Delayed clearance of fault captured in most of the grid events in UT J&K/Ladakh control area. Availability of automatic DR (disturbance recorder) and station event logger needs to be ensured for all the 220 kV and above stations. DR/EL and preliminary report needs to be submitted within the stipulated timelines.

v. In order to make connectivity more reliable and for secure power supply to the valley, restoration of 220kV Kishenpur-Mirbazar and commissioning of underlying network at 400/220kV New Wanpoh to be expedited.

vi. Mock black start exercise of URI-I & URI-II HEP, Lower Jhelum HEP is yet to be conducted.

vii. Adequate reactive compensation i.e. reactor & capacitors to be planned and implemented.

viii. Data for monthly PoC case to calculate transmission losses and charges to be shared with NRLDC/NLDC.

ix. Need for establishment of SLDC Control Room (manned 24x7 by trained grid operators) in the UT of Ladakh

Representative from J&K U/T and Ladakh U/T may kindly provide update on these issues.

14. Extension of 220kV Switchyard – "Construction of two (2) no. 220 kV Line bays at Roorkee" (Agenda by NR-1 Powergrid)

14.1. NR-1 Powergrid has intimated that the associated transmission line has to be executed by PTCUL, however it is not known to which substation this line will be

terminated and when it will be taken on load. The line bay had already been charged as per details below:

Sl. No.	Bay No.	Date & Time of energization		Name of Scheme	Letter issued from NRLC
		Date	Time		
i)	213	27/10/2018	12:33	NRSS-XXXVI	29/10/2020
ii)	214	10/03/2022	17:10	NRSS-XL	21/04/2022

14.2. The tariff petition for said assets has already been filed to CERC for approval of DOCO.

14.3. PTCUL may kindly confirm the details of its connectivity and anticipated date of taking it on load.

Members may kindly deliberate.

15. Approval of utilization of 2x50 MVAR Reactors and 4 nos. associated line bays at Meerut (Agenda by NR-I Powergrid)

15.1 NR-1 Powergrid has intimated that following 4 nos. of 400kV line bays are spared at Meerut substation **(Under Tehri HEP Scheme)** during upgradation of 400 D/C kV Meerut-Koteshwar TL to 765 kV under **"Tehri PSP**" Scheme:

a) 400KV Line bay-1

b) 400KV Line bay-2

c) 400KV Switchable line reactor bay along with 50MVAR switchable line reactor for line#1

d) 400KV Switchable line reactor bay along with 50MVAR switchable line reactor for line#2

15.2 Out of above bays, one is utilized for 125MVAR Bus reactor at Meerut **(DOCO-13.12.2021)** under NRSS-XL scheme and another bay is utilized for connecting 2 nos. 50 MVAR reactor in parallel for using them as bus reactor which was already agreed in 4th Meeting of NCT, para-14.1 (page 35 & 36). NRPC agreed the proposal of CTUIL to use 2 nos. 50 MVAR reactor as Bus Reactor at Meerut station. However, following points to be discussed and clarified:

a) The approval of utilizing one no. 400KV line bay to connect one no. 125 MVAR bus reactor at Meerut under NRSS-XL.

b) Utilization of balance 2 nos. switchable 400KV bay equipment (Circuit breakers) and maintain the same as a regional spare.

Members may kindly deliberate.

16. Requirement of revision of "Review of Special Protection Scheme (SPS) at POWERGRID Bhadla Pooling station" (Agenda by NR-I Powergrid)

16.1 The agenda for review of SPS Scheme at POWERGRID Bhadla (Rajasthan) was brought in 53rd NRPC meeting, wherein it was discussed to put up this issue through

OCC meeting.

16.2 As advised, the issue was discussed during 194th OCC meeting held on 19.04.2022, wherein NRLDC had agreed to review the existing SPS scheme at Bhadla in view of changes in network configuration.

16.3 POWERGRID vide email dtd 22.04.2022 requested NRLDC to review the scheme and advise further.

16.4 NRLDC is requested to review the same and advise POWERGRID for further needful. It may be noted that the purchase order for SPS implementation has been awarded on 14.02.2022 and agency is waiting for our consent for starting the works.

16.5 NRLDC may kindly advise on the matter so that work can be completed as per schedule of contract.

Members may kindly deliberate.

17. Review of Setpoints for SVC Kankroli in view of non-optimal operation (Agenda by NR-I Powergrid)

17.1 NR-1 Powergrid has intimated that as per NRDLC instructions dt. 11.06.2022, set-points were revised for SVC installed at POWERGRID Kankroli SS(Rajasthan). As per these instructions Voltage reference setpoint (V_{ref}) of SVC were changed as follows:

	Setpoints (pre-revision)	**Setpoints (post-revision)**
Vref	404KV	414KV
Voltage limit (min)	400KV	410KV
Voltage limit (max)	408KV	418KV

17.2 As discussed during the time of revision in settings, it was understood that the same is being done as an emergency control measure to keep check on drop in bus voltage in the area due to high loading on 400kV Bhinmal-Zerda line.

17.3 However, it was brought to kind notice of NRLDC that the change in V_{ref} setpoint to 414kV has forced to SVC control to inject full Capacitive VArs (upto + 400MVAr) even when the bus voltage is in the normal range i.e. 400kV - 410kV.

17.4 The trends of 400kV Bus voltage (at Kankroli) and SVC VAR injection for the period before and after 11th June'22 (date of settings revision) is shown below. In below figure, the green colour represents the period prior to change in setpoint change and yellow colour represents the period after that.

17.5 It may be noted the SVC is trying to push the bus voltage to 414kV, even when the bus voltage is in the normal range of 404KV to 410KV most of the time. In this pursuit, the SVC is continuously operating full load condition (injecting capacitive MVAr). To make the situation worse, the 125MVAr Bus Reactor at Kankroli is in service all the time i.e., reactive VArs of Bus Reactor is also being compensated by SVC and thus unnecessarily overloading the SVC components. The Thyristor cooling system and Coupling Transformer cooling systems are operating with all the fans in ON condition (pls refer below screenshot) increasing the auxiliary power losses of substation.

17.6 It is well understood that the very purpose of Dynamic voltage compensation devices (such as SVC, STATCOM) is to provide Dynamic support to the Grid in case of contingencies (such as voltage collapse, load throw off, faults etc.) and not use them as continuous VAr support devices like Shunt Reactors & Shunt Capacitors.

17.7 In view of the foregoing, NRLDC is requested to kindly review the set-points for SVC Kankroli so as to keep sufficient dynamic reserve capacity for unwanted contingencies/grid events.

17.8 Submitted for review and necessary change in setpoints for optimal usage of SVC at Kankroli substation.

Members may kindly deliberate.

18. Requirement of SPS Schemes at RE pooling stations of POWERGRID in Northern Region (Fatehgarh-2, Bikaner, Bhadla-2) (Agenda by NR-I Powergrid)

18.1 NR-1 Powergrid has mentioned that “n-1” contingency criterion is not being fulfilled for Step-up Transformers at the present state at POWERGRID RE Pooling stations in Rajasthan region (Bhadla, Bhadla-2, Bikaner & Fatehgarh-2) and outage of any

500MVA 400/220kV Transformer in aforementioned substations shall adversely impact both the pooling capacity as well as the health of the remaining Transformers. Further, routes available for evacuation of power from POWERGRID are restricted. Therefore, failure of any equipment on downstream side immediately requires tripping of 220kV lines connected to solar generators.

18.2 In order to provide relief from any situation arising from outage of Transformer during peak generation hours, SPS scheme was proposed for 765/400kV Bhadla substation. Therefore, in view of constrained transformation capacity and limited availability of routes for power evacuation, the requirement of SPS scheme at other RE pooling stations such as POWERGRID Fatehgarh-2, Bikaner and Bhadla-2 may be reviewed.

Members may kindly deliberate.

19. Recovery of Tariff (including O&M charges) for Automatic Meter Reading system (AMR) system installed in Northern Region for collection of SEM data (Agenda by NR-I Powergrid)

19.1 NR-1 Powergrid has mentioned that the Automatic meter reading (AMR) system for collection of SEM data centrally at NRLDC was implemented by POWERGRID as per discussion held in 15th NRPC meeting. The purchase order for installation and commissioning of AMR system for Northern Region was awarded by POWERGRID to M/s Kalkitech in February 2012. The initial purchase order was placed for integration of 1250 SEMs at 220 locations of Northern Region at total cost of Rs. 1.87 Cr with a provision of AMC for 04 years after completion or warranty period of one year.

19.2 In order to take care of expanding power network in NR, over 1863 SEMs have been integrated in AMR at 300 locations so far. The total amended value of the contract has gone over 3.22 Cr (i.e., 73% variation from original contract) and there is no further scope of extension under this contract.

19.3 As per discussion in 15th NRPC Meeting, The AMR scheme has to be treated as a new project and tariff including O&M charges as determined by CERC shall be borne by the beneficiaries of Northern Region. POWERGRID has so far incurred an expenditure of over 3.22 Crores on AMR system. However, POWERGRID has not recovered any tariff on the same till now.

19.4 In view of above backdrop, it is requested to finalize the modalities for recovery of tariff (including O&M charges) from beneficiaries of Northern Region over the expenditure incurred by POWERGRID for installation and maintenance of AMR system.

Members may kindly deliberate.

20. LC-oscillations/resonance in over-compensated 765kV transmission lines in Northern Region-1 (Agenda by NR-I Powergrid)

20.1 The shunt compensation in lines is planned and implemented to control the switching and temporary over voltages as well as to control study state voltages in the system.

However, a higher percentage of compensation in transmission line is also known to cause L-C resonance and oscillations. L-C resonance/oscillations in such overcompensated transmission lines could result in sustained over voltages causing damage to terminal equipment and tripping of lines on over-voltage protection.

20.2 In the past, such L-C resonance/oscillations have been observed in some of such over compensated transmission lines. In some cases, tripping of transmission lines on over-voltage protection during transient faults has also been reported. Incidences have also been reported in the region, wherein these oscillations have been triggered by routine switching or in some cases during single-pole auto reclosure of line on single phase transient fault.

20.3 After acknowledging and analyzing such incidences, CTU while issuing charging instructions for new 765kV transmission lines have incorporated instructions to trip the switchable line Reactor during tripping/single pole auto-recloser of transmission line.

20.4 The details of transmission lines in northern region-I wherein percentage (%) compensation is over 50% and is vulnerable to occurrence of resonance/associated challenges are attached as below:

S. No	Name of Line	Line Length (km)	Details of Line Reactor				% Comp	
			Capacity		Switching Arrangement			
			End-I	End-II	End-I	End-II		
1	765kV Bikaner-Badhla-I	169.44	240	240	Sw	Sw	120%	Estimated MVAr generation = 235MVAr/ 100km
2	765kV Bikaner-Badhla-II	169.448	240	240	Sw	Sw	120%	
3	765kV Ajmer-Chittorgarh-I	211.17	240	240	Sw	Sw	96%	
4	765kV Ajmer-Chittorgarh-II	211.17	240	240	Sw	Sw	96%	
5	765kV S/C Jhatikara-Aligarh	158	330	-	Sw	-	89%	
6	765kV Chittorgarh-Banaskatha-I	302.41	240	330	Sw	Sw	80.21%	
7	765kV Chittorgarh-Banaskatha-II	302.41	240	330	Sw	Sw	80.21%	
8	765kV Bikaner-Moga-I	351	330	330	Sw	Sw	80.01%	
9	765kV Bikaner-Moga-II	351	330	330	Sw	Sw	80.01%	
10	765kV Ajmer-Badhla-II Ckt-I	326	240	240	Sw	Sw	62.66%	
11	765kV Ajmer-Badhla-II Ckt-II	326	240	240	Sw	Sw	62.66%	
12	765kV S/C Bhiwani-Phagi Ckt-I	272	240	240	Sw	Sw	75.09%	
13	765kV S/C Bhiwani-Phagi Ckt-I	277	240	240	Sw	Sw	73.74%	
14	765kV S/C Meerut-Moga	337	240	240	Sw	Sw	60.61%	
15	765kV S/C Meerut-Koteshwar Ckt-I	176	240	-	Sw	-	58.03%	
16	765kV S/C Meerut-Koteshwar Ckt-II	179	240	-	Sw	-	57.05%	

20.5 In view of vulnerability due to occurrence of resonance and associated challenges in above mentioned transmission lines, it is requested that TOV and LC oscillations probability in these lines may be studied and long/short term measures may be suggested to ensure that such conditions do not result in over voltages in transmission lines.

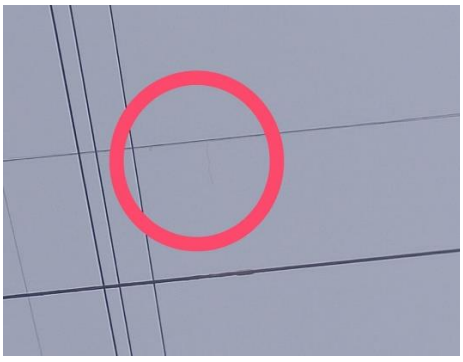
Members may kindly deliberate.

21. Frequent tripping of 220KV D/C Hisar – Hisar (IA) Line (Agenda by NR-I Powergrid)

21.1 220KV D/C Hisar – Hisar (IA) (POWERGRID) line is a vital link of power requirement of Haryana, which carried approx. 400-500MW in peak hours. Further, 220kV D/C Hisar (IA) – Sangwan transmission line of HVPNL is underneath crossing 220kV D/C Hissar – Hissar (IA) line of POWERGRID with clearance of only 4Mtr {between OPGW of this line with bottom conductors of 220kV D/C Hissar – Hissar (IA)}, this resulted tripping of 220KV Hisar-Hisar (IA) line during stormy weather.

21.2 Moreover, it is to mention here that, in the same crossing section, 3 more lines are also crossing, therefore diamond crossing option is not feasible.

21.3 Therefore, M/s HVPNL is requested to dismantle the existing OPGW cable from tower peak and ADSS cable to be laid on 220KV Hisar-Sangwan line towers (parallel to bottom conductors i.e., ADSS cable will be passing through middle of the tower, conductor clearance will come approx. 7 to 8 mtrs plus).



Members may kindly deliberate.

22. NR Grid Highlights for July 2022

Maximum energy consumption of Northern Region was 1667.96 Mus on 08th July'22 and it was 1.1 % higher than July' 2021 (1650.07 Mus 07th July'21)

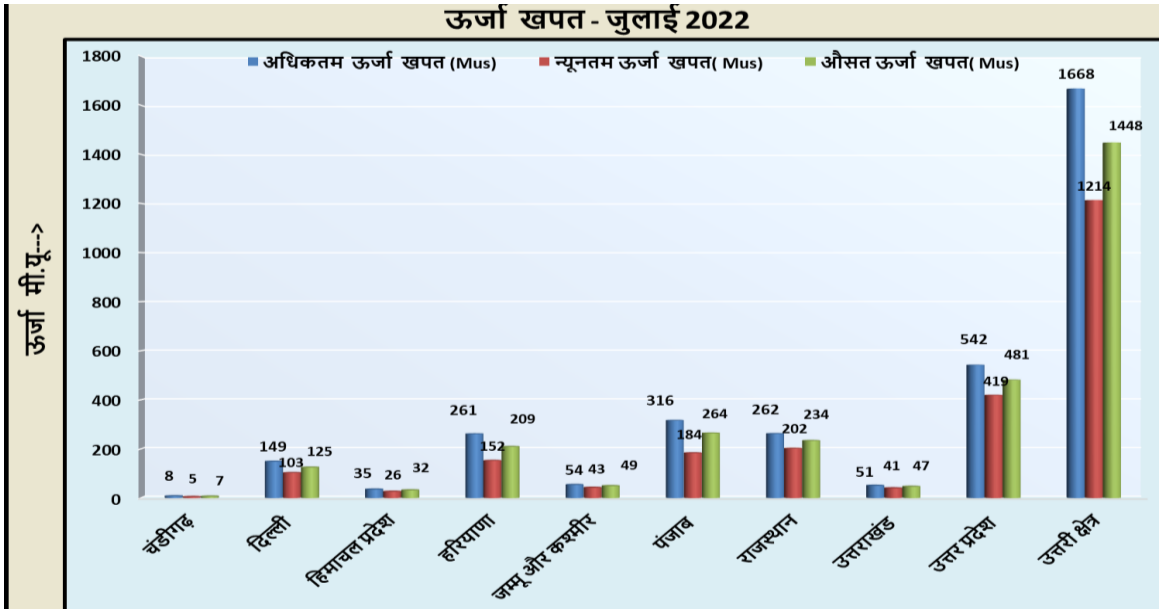
Average energy consumption per day of Northern Region was 1448.09 Mus and it was 1.1 % higher than July'21 (1432.88 Mus per day)

Maximum Demand met of Northern Region was 74143 MW on 08thJuly'22 @23:00 hours (based on data submitted by Constituents) as compared to 72935 MW on 07th July'21 @01:00 hours.

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

State (Maximum Demand Met)	All Time High Record		Previous Record (upto June-22)	
	Value (MW)	Achieved on	Value (MW)	Achieved on
Uttar Pradesh	25951	15.07.22 at 21:00	25755	07.06.22 को 21:00 बजे

Energy Consumption in July 2022



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

State	July - 2021	July - 2022	% Diff
Chandigarh	6.5	6.6	1.0
Delhi	119.6	125.0	4.6
Himachal Pradesh	29.0	32.2	11.1
Haryana	209.7	209.4	-0.1
Jammu & Kashmir	46.6	49.5	6.1
Punjab	265.0	264.3	-0.3
Rajasthan	262.6	233.7	-11.0

Uttarakhand	43.9	46.6	6.2
Uttar Pradesh	450.1	480.9	6.8
Northern region	**1432.9**	**1448.1**	**1.1**

Frequency Data Comparison

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
July'22	50.00	50.30	49.42	7.8	73.5	18.7
July'21	50.01	50.26	49.51	5.4	75.1	19.5

In July'22, frequency remained within IEGC band for only 73.5 % of the time. All utilities are requested to follow all the measures as discussed in previous OCC meetings.

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

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

Summary of outage of hydro plants due to high silt content in July 2022 is shown below:

Sr. No.	Outage of Hydro Plants due to High Silt Content	Installed Capacity (MW)	Total Silt Value (PPM) of Intake at which Plants under Alert mode and start reducing	Maximum Silt Value (PPM) of Intake at which machine undergo	Total Outage in the month of July 2022 (in Hrs)

			generation if PPM value increasing trends	Complete Shutdown	
1	Bairasiul HPS	180	>2500	>3000	262
2	Baspa HPS	300	>1500	>1600-1700	4
3	Budhil HPS	70	>1500	>2000	8
4	Chamera- II HPS	300	>4000	>4500	51
5	Chamera- III HPS	231	>4000	>4500	55
6	Dulhasti HPS	390	>4000	>4500	43
7	Karcham Wangtoo HPS	1045	>4000	>4500	21
8	Naptha Jhakari HPS	1500	>4000	>4500	24
9	Rampur HPS	412	Tandem with NJHPS	Tandem with NJHPS	24
10	Parbati-III HPS	520	>2500	>4000	14
11	Sainj HPS	100	>500	>1000	21
12	Salal HPS	690	>3000	>3500	25
13	Sorang HPS	100	>2500	>3000	75
14	Tanakpur HPS	94	>4500	>5000	11
15	Vishnuprayag HPS	440	>1400	>2000	5
	Total	**6664**			

As discussed in 197 OCC meeting, all concerned hydro stations are advised to regularly and timely update on the silt measurements from site and upload on portal for monitoring at NRLDC control room. It is also advised to timely intimate in case of requirement of silt flushing so that adequate time is available with NRLDC so as to take necessary actions.

Members may like to discuss.

23. Issues related to Power System Operation of J&K/Ladakh

Major issues related to Power system operation in J&K and Ladakh were discussed in detail in 47th TCC and 49th NRPC meetings and special meeting held on 28.07.2020 to deliberate on the issues related to UT of J&K and Ladakh.

Following issues still persist in J&K and Ladakh control areas:

i. Most of the 220 kV voltage level Substations of PDD-J&K, are being operated with only one Main and transfer bus scheme instead of double main transfer (DMT) bus as per CEA planning criteria and therefore bus shutdown requires shutdown of entire station which affects reliability of power supply.

On 29.05.2022, complete shutdown of 220/132kV Hiranagar substation was taken by JKPTCL as there is only single bus and transfer scheme. This led to

loss of generation at Sewa-II and load loss in Kathua area which could have been avoided if there were double main and transfer scheme available at 220/132kV Hiranagar substation. Same was also communicated vide NRLDC letter dated 28.06.2022 attached as **Annexure-B.I**. Moreover, there have also been number of other such events previously.

ii. As per the agreed quantum relief for NR, total target in respect of J&K for UFR and df/dt are 336 MW and 270 MW respectively. Confirmation on relief quantum is yet to be received from J&K. Moreover, in compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings. Status is still pending from J&K end.

iii. Two stages (450 MW each) of Baglihar HEP (900 MW) operate on two different buses and are being evacuated through two 400 kV lines connected to two different buses operating in disconnected manner. As a result, although each line has capacity to evacuate power from both stages, under outage of one line, there is loss of one stage generation i.e 450 MW. UT-J&K to expedite the coupling of two buses of Baghlihar stage-1 & 2 to minimize the probability of generation loss

iv. Delayed clearance of fault captured in most of the grid events in UT J&K/Ladakh control area. Availability of automatic DR (disturbance recorder) and station event logger needs to be ensured for all the 220 kV and above stations. DR/EL and preliminary report needs to be submitted within the stipulated timelines.

v. In order to make connectivity more reliable and for secure power supply to the valley, restoration of 220kV Kishenpur-Mirbazar and commissioning of underlying network at 400/220kV New Wanpoh to be expedited.

vi. Mock black start exercise of URI-I & URI-II HEP, Lower Jhelum HEP is yet to be conducted.

vii. Adequate reactive compensation i.e. reactor & capacitors to be planned and implemented.

viii. Data for monthly PoC case to calculate transmission losses and charges to be regularly shared with NRLDC/NLDC.

ix. Establishment of SLDC Control Room (manned 24x7 by trained grid operators) in the UT of Ladakh

Representative from J&K U/T and Ladakh U/T may please provide update on these issues.

24. TTC/ATC of state control areas for monsoon 2022

Most of the NR states except J&K, Ladakh and Chandigarh U/Ts are sharing basecase and ATC/TTC assessment with NRLDC. OCC has advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement.

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

Loading of 400/220kV ICTs observed above or close to N-1 contingency limits is also attached as **Annexure-B.III**.

Punjab

In 197 OCC meeting, Punjab SLDC representative informed that:

- Reconductoring of Jalandhar-Kartarpur 2nd ckt is likely to be completed within one week.
- They shall try and manage loading of all 400/220kV ICTs within their N-1 contingency limits. At Nakodar, SPS is implemented, so sometimes loading may be higher than N-1 contingency limit.
- Punjab has started selling power in real-time market from 21st July onwards and power was sold in few time blocks in real-time on trial basis. Based on analysis for savings, the matter would be put up for approval from higher management and a procedure would be formulated on the same.
- Meeting with TSPL is scheduled in last week of July to discuss issues related to frequent outages of TSPL generating units. Outcome of the meeting would be shared with NRPC/ NRLDC.

NRLDC representative stated that selling power in real-time market is a welcome step, however, same needs to be done as per requirement, as even after selling some power in real-time market, Punjab still had under drawl of 16MUs on 21.07.2022. Punjab SLDC agreed to work on the same.

Punjab SLDC to provide update.

UP

In 197 OCC meeting, UP SLDC representative provided following information:

- SPS scheme is being shifted from Bareilly to Sohawal. Order to be placed to synergy within next 10 days (stated by UP-STU)
- For Obra SPS, budgetary offer is being collected from vendors.
- Capacity augmentation of ICT at Gorakhpur (UP) is delayed due to delay in transformer allotment.
- Regarding change in schedule in consecutive time blocks, matter is being taken up with Power Management cell (PMC).

OCC advised that UP SLDC may arrange separate discussions with PMC cell, if required NRPC and NRLDC may also be invited.

UP SLDC to provide update.

Rajasthan

In 197 OCC meeting, Rajasthan SLDC representative was requested to provide the plan to ensure loadings at constrained 400/220kV ICTs such as Ajmer, Merta, Chittorgarh, Bikaner and Jodhpur below their N-1 contingency limits and also status of implementation of SPS as agreed in last few OCC meetings.

Rajasthan SLDC representative provided following information:

- SPS implementation at Merta and Chittorgarh has been completed. SPS implementation would be completed at Ajmer in next week.
- SPS for 400/220kV Bikaner would be developed and shared with NRPC/ NRLDC.
- New ICT has been approved at Ajmer, Merta, Bikaner and Jodhpur. NRLDC representative stated that documents for approval of these ICTs may be shared by RVPN as same would also be required during FTC of elements. RVPN agreed to share approval of these new ICTs with NRPC/ NRLDC.

Rajasthan SLDC to provide update.

Delhi

ATC/TTC is not being uploaded in website.

In 197 OCC meeting, NRLDC representative highlighted following issues:

- ATC is not being uploaded on website.
- Loading of 400/220kV Mundka, Bawana (section having two ICTs) and Harshvihar ICTs was close to N-1 contingency limits

Delhi SLDC representative informed that issue of N-1 non-compliance at Bawana would be there, however it has been ensured that the ICTs are in split operation i.e. if one split ICT trips, there would be tripping of some load and other ICT would not be overloaded. It was confirmed by Delhi SLDC that there would not be any critical load effected in case of tripping of these ICTs.

Regarding, upload of ATC/TTC limits on website, Delhi representative stated that same would be uploaded on website as soon as possible.

Delhi SLDC is requested to provide update.

Haryana

In 196 OCC meeting, it was discussed that N-1 non-compliance was observed at 400/220kV Deepalpur and Panipat (BBMB) ICTs. It was discussed that Haryana and Delhi may mutually discuss and resolve the issue of loading of 400/220kV Panipat ICTs and in case same is not resolved it could be discussed in separate meeting or next OCC meeting after agenda by Haryana/ Delhi.

In 197 OCC meeting, NRLDC representative expressed concern on the slow progress of SPS implementation at 400/220kV Kurukshetra and asked HVPN to coordinate with POWERGRID and expedite SPS implementation. It was also discussed that loading of 400/220kV Deepalpur ICTs may be ensured to level such that SPS relief is able to ensure loading of ICTs below their safe limits in case of contingency.

In the meeting, Haryana SLDC representative stated that Delhi SLDC has submitted that their load cannot be shifted from Panipat(BBMB). Panipat(BBMB) has also informed that there is no space for additional ICT at Panipat(BBMB). Accordingly, matter will be taken up with planning division of HVPN. New ICT addition at Deepalpur is delayed due to PPP model and tariff issues. Status of SPS at Kurukshetra and new ICT at Deepalpur would be shared within one week.

OCC advised Haryana for ensuring loading of 400/220kV Deepalpur ICTs such that SPS relief is able to ensure loading of ICTs below their safe limits in case of contingency and expedite SPS implementation at 400/220kV Kurukshetra.

Haryana SLDC to provide update.

Uttarakhand

In 197 OCC meeting, it was discussed that for Uttarakhand, N-1 compliance was observed at 400/220kV Kashipur ICTs along with high loading of 220kV CBGanj-Pantnagar. Uttarakhand SLDC was also asked to explore requirement of SPS at Kashipur. Two tripping events were also observed since last OCC meeting, in which after tripping of 220kV CBGanj-Pantnagar, loading of 400/220kV Kashipur ICTs also increased ultimately tripping on overload and leading to load loss. In last OCC meeting, Uttarakhand SLDC was also advised to explore possibility of SPS at Kashipur or any other option of load management to avoid tripping on overloading.

In the meeting, Uttarakhand STU representative stated that SPS proposal is under development stage and same would be shared with NRPC/ NRLDC after discussions internally. As per preliminary logic, around 100MW load would be shed to avoid tripping of ICTs on overload.

Uttarakhand SLDC to provide update.

HP have shared their ATC/TTC assessment for August 2022. Loading was observed beyond N-1 compliant limit for 400/220kV Nallagarh ICTs. High loading of 220kV Nallagarh-Upernangal D/C was also observed.

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.

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**

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. NRLDC is continuously sending emails in real-time for ensuring N-1 compliances as well as restricting schedule till ATC limit and maximizing internal generation. SLDCs need to ensure this during real-time operation.

Members may like to discuss.

25. NR-ISTS RE evacuation issues

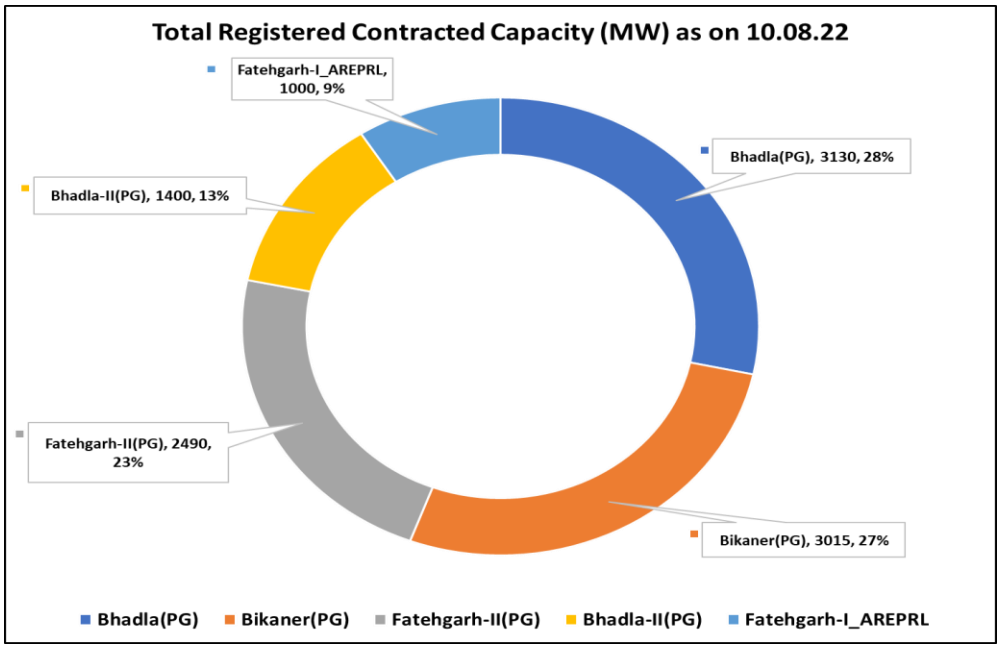
Presently, more than 10GW of Renewable energy has been commissioned in Northern region, most of which is in Western Rajasthan. Following capacities have been commissioned and approved under LTA/MTOA/STOA at different ISTS RE pooling stations in NR:

User Name	Capacity Approved under LTA/MTOA/STOA (MW)			Total Approved capacity (MW)	Total Contracted Capacity (MW)	Total Installed Capacity (MW)
	LTA	MTOA	STOA			
Bhadla(PG)	2637	0	450	3087	3087	3130
Bikaner(PG)	1950	240	483	2673	2673	2673

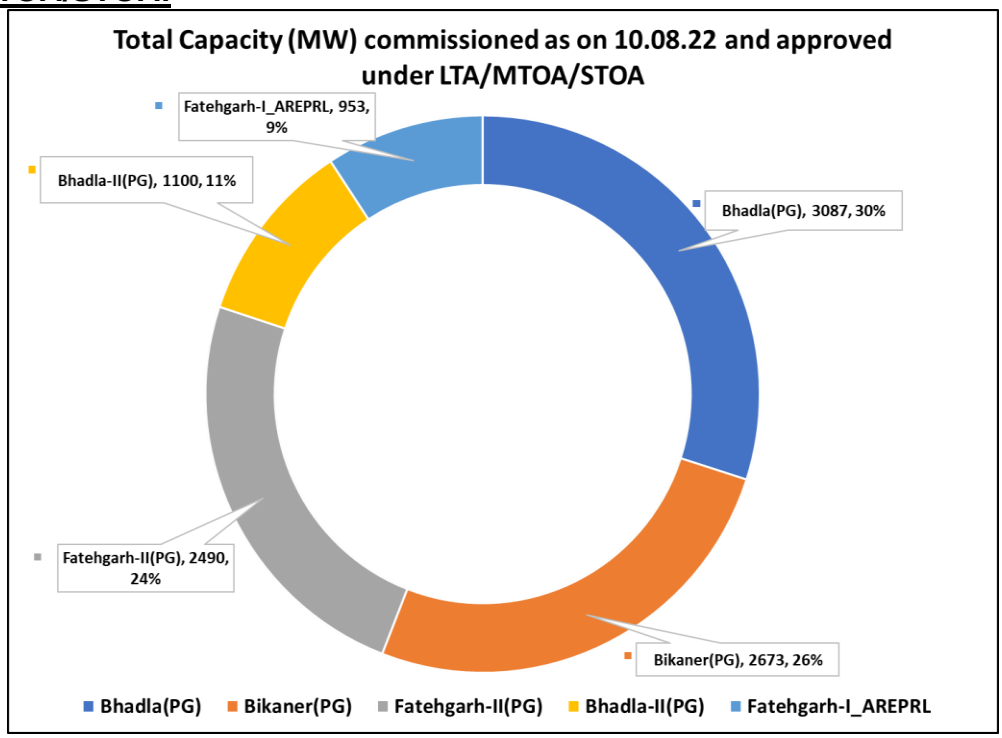
Fatehgarh-II(PG)	1890	0	600	2490	2490	2670
Fatehgarh-I(Adani)	296	0	657	953	953	1181
Bhadla-II(PG)	250	0	850	1100	1100	1100
Total RE at NR ISTS	**7023**	**240**	**3040**	**10303**	**10303**	**10754**

**In case of Hybrid plants, Contracted capacity is lesser than its Installed capacity.*
**In case of Solar plants, Contracted capacity is equal to Installed capacity.*

Total Registered Contracted Capacity (MW) as on 10.08.22:

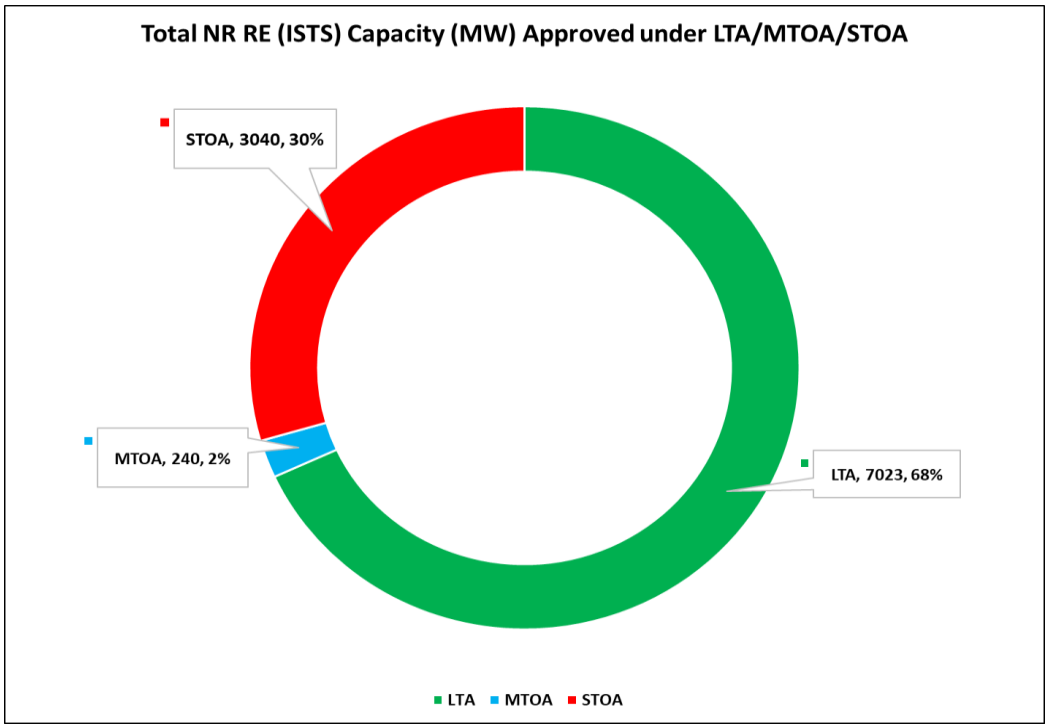


Total Capacity (MW) commissioned as on 10.08.22 and approved under LTA/MTOA/STOA:



Additional 342MW at Bikaner(PG), 300MW at Bhadla-II(PG), 43MW at Bhadla(PG) and 43MW at Fatehgarh-I (Adani) is expected to integrate soon as plants are already registered and have commissioned their part capacity

Total NR RE (ISTS) Capacity (MW) Approved under LTA/MTOA/STOA:



Out of this 10,303 MW around 3040 MW (30%) is being evacuated through short term open access as the planned transmission system for evacuation of RE from these stations is yet to be commissioned. Due to absence of complete planned transmission system, high loading of 400kV Bikaner(PG)-Bikaner(RS) line and voltage issues are being observed in real-time. Issues being observed at present level of RE generation are summarized below:

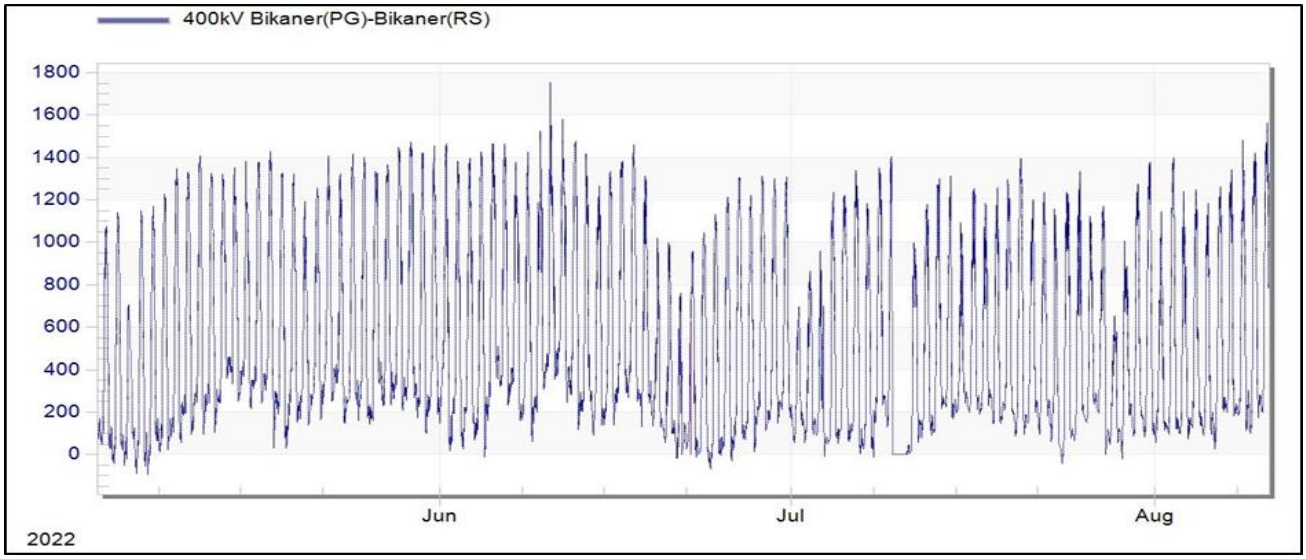
High loading of 400kV Bikaner(PG)-Bikaner(RS) line:

Although 400kV Bikaner(PG)-Bikaner(RS) line is Quad moose having thermal loading limit of around ~1750MW. Due to significant RE at Bikaner(PG), and low impedance path of 400kV Bikaner(PG)-Bikaner(RS) line, line loading of 400kV Bikaner(PG)-Bikaner(RS) remains high and is reaching 1400-1500MW during peak solar generation period as shown below. As of now, 400kV Bikaner(RS)-Sikar D/C lines are being opened to manage loading of 400kV Bikaner(PG)-Bikaner(RS).

However opening of 400kV Bikaner(RS)-Sikar(PG) ckt-1 & ckt-2 has its own drawback i.e.,

- By opening 400kV Bikaner(RS)-Sikar(PG) ckt-1, voltage at 400kV Bikaner(PG) falls by 3kV.

- By opening 400kV Bikaner(RS)-Sikar(PG) ckt-1&2, voltage at 400kV Bikaner(PG) falls by 7kV.



At the time of peak RE generation of ISTS and Rajasthan, 400kV Bikaner(PG)-Bikaner(RS) line would be N-1 non-compliant (when line loading>1400MW) and in case of tripping of either 765kV Bikaner(PG)-Khetri or 400kV Bhadla(PG)-Bhadla(RS) line, loading of 400kV Bikaner(PG)-Bikaner(RS) may cross its thermal loading limit.

Rajasthan/PGCIL may explore feasibility of the following options to minimize the post contingency impact of this line on the system:

- Expediting planned transmission system for RE evacuation so that loadings in the complex are eased.
- Expediting removal of LILO of one circuit of Bhadla-Bikaner(RVPN) 400kV D/c(Quad) line at Bikaner(PG). Extension of above LILO section from Bikaner(PG) upto Bikaner-II PS to form Bikaner-II PS – Bikaner (PG) 400kV D/c(Quad) line)
- Switchgear rating at Bikaner(PG) and Bikaner(RJ) end to be checked and upgraded.
- Shifting the supply of part of Rajasthan load to some S/S other than Bikaner.
- Managing N-1 non-compliance at 400/220kV Bikaner ICTs

Voltage related issues during peak solar generation period:

With existing quantum of generation and existing network system, safe generation evacuation is nearing its limit and any N-1 contingency of 765kV Bikaner(PG)-Khetri ckt-1&2, 400kV Bikaner(PG)-Bikaner(RS), 765kV Fatehgarh-II(PG)-Bhadla(PG) ckt-1&2 and 765kV Fatehgarh-II(PG)-Bhadla-II(PG) ckt-1&2 may lead to generation loss or critical voltage issues in the complex.

POWERGRID/CTU may update the status of commissioning of upcoming transmission elements in the complex.

Moreover, revival of following line reactors under long outage needs to be expedited such as:

S. No	Element Name	Outage		Reason / Remarks
1	50 MVAR LR ON 400 KV AKAL-RAMGARH (RS) CKT-1 @RAMGARH(RS)	23-04-2018	14:10	Reactor is out as line is yet to be commissioned. Shifted to Bhadla line.
2	50 MVAR Non-Switchable LR on Akal-Jodhpur (RS) Ckt-1 @Jodhpur(RS)	07-07-2022	21:10	To take-out Line Reactor out of service due to high DGA violation; for internal inspection by OEM.
3	50 MVAR LR on Akal-Jodhpur (RS) Ckt-1 @Akal(RS)	17-08-2021	23:47	Akal: DT Receive Jodhpur: DT Send, 400 kV Reactor Manually Trip at 400 kV GSS, Jodhpur due to low voltage (before tripping reactor was charged as a bus reactor)
4	50 MVAR Bus Reactor No 1 at 400KV Bikaner(RS)	02-06-2022	19:11	Reactor Back-up Impedance protection operated.

From the analysis of past events, it was seen that at the time of higher demand and high wind (7:30hrs-12:00hrs) in Rajasthan voltage was on lower side at Kankani & Jodhpur leading to low voltage at 400kV Akal, 400kV, Kankani, 400kV Barmer, and 400kV Ramgarh. At the same time solar generation ramped up and resulted in further MVAR drawl from Jodhpur and Kankani. Hence significant low voltage at 400kV Akal, 400kV, Kankani, 400kV Barmer, 400kV Ramgarh and 400kV Bhinmal was observed. High reactive power demand in Rajasthan is also playing important role in low voltage and voltage oscillation of RE pocket of NR.

Rajasthan SLDC in coordination DISCOMs need to improve the voltage profile at 400kV Akal, 400kV, Kankani, 400kV Barmer, 400kV Ramgarh and 400kV Bhadla by providing required reactive power compensation so as to avoid poor p.f. in the area and improve voltage profile.

Members may please discuss.

26. Grid operation related issues

(i) Long outage of transmission elements/ generating units

Reasons and revival date for elements under long outage are being discussed regularly in OCC meetings. Any update on the status of these elements from last OCC meeting may be shared with the forum (**Annexure-B.IV**).

All utilities are requested to make it a practice to update status of elements under long outage in the NRLDC outage software portal. Utilities are requested to take necessary actions to revive elements which are under long outage.

Members may please discuss.

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

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

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

Members may like to discuss.

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

In 197 OCC meeting, Haryana SLDC representative informed that SCADA team is working on the issue and trying to determine additional RTUs required for the work. Haryana SLDC was asked to share the details so that same can be incorporated in OCC minutes. However, reply was not received.

Uttarakhand SLDC representative informed that data calculation was already done from SLDC end data and there is difference between the values from NRLDC end and Uttarakhand SLDC end drawl data; few data points are suspected. There are shortages of Multi-Functional Meters, and issues of faulty PLCC links. It was informed by SCADA wing of PTCUL that SCADA had initiated tenders of procurement of MFM and for re-locations of Digital PLCC Panels and expected to be completed by Aug'2022.

Haryana and Uttarakhand SLDCs are requested to provide update on the agenda point.

Members may please discuss.

27. Frequent forced outages of transmission elements in the month of July'22

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

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	400 KV Muradnagar_2-Mathura (UP) Ckt-1	3	UP

2	400 KV Avaada Pooling SL_BKN_PG (AEPL)-Bikaner(PG) (AEPL) Ckt-1	3	AEPL
3	220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1	4	ACME
4	220 KV Nanauta(UP)-Saharanpur(PG) (UP) Ckt-1	5	POWERGRID/UP
5	220 KV Panipat-Kurukshetra (BB) Ckt-1	4	BBMB
6	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1	3	RAJSTHAN
7	220 KV Sohawal(PG)-Ayodhya (UP) (UP) Ckt-1	4	UP
8	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	7	Cleansolar Jodhpur

The complete details are attached at **Annexure-B.V**. It may be noted that frequent outages of such elements affect the reliability and security of the grid. Hence, utilities are requested to analyze the root cause of the tripping and share the remedial measures taken/being taken in this respect.

Members may like to discuss.

28. Multiple element tripping events in Northern region in the month of July ’22

A total of 21 grid events occurred in the month of July’22 of which **17** are of GD-1 category. The preliminary report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.VI.**

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

Maximum Fault Duration observed is 1.4 seconds in the event of multiple element tripping at 220/132kV Jammu (Gladni). As reported, at 10:30hrs, PT of 132kV Bus at Gladni switchyard burst. Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) was observed in total **9** events out of **23** grid events occurred in the month. In 5 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.

29. Details of tripping of Inter-Regional lines from Northern Region for July’22:

A total of 7 inter-regional lines tripping occurred in the month of July’22. The list is attached at **Annexure-B.VII.** The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been

mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees / ISGSs is in violation of regulation 5.2(r) of IEGC and regulation 15(3) of CEA Grid Standards. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than that mandated by CEA (Grid Standard) Regulations.

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

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

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

NRLDC has also highlighted the issue of non-receipt of DR/EL and tripping reports for grid events with CPCC-NR1, CSP Jodhpur, Acme, Renew Bikaner (**Annexure-B.IX**).

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.

Members may like to discuss.

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

In last 16 OCC meetings, this point was discussed and Utilities were requested to submit the present status of PSS tuning/re-tuning and Step Response Test of their respective generators as per the below mentioned format.

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

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

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

In Rajasthan control area, PSS tuning/ retuning and step response of Unit #1, 2,3,4,6 & 7 of KTPS, Kota carried out during the period 02.03.22 to 04.03.22 and Unit #2 & 4 of STPS, Suratgarh was conducted on 06.06.22.

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

It is to be noted that as per regulation 5.2(k) of IEGC, Power System Stabilizers (PSS) in AVRs of generating units (wherever provided), shall be 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 197th OCC meeting, Members were requested to update about their future plan for PSS tuning as there is no significant progress despite including this agenda in every OCC meeting and a separate meeting may be call for detail discussion on this matter.

Members may please discuss.

32. Frequency response characteristic

Three FRC based event occurred in the month of **July-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	09-July-22	13:42hrs	1. At 13:42hrs, 400 KV Bikaner(PG)-Bikaner(RS) (PG) Ckt-1 tripped on R-Y phase to phase fault. 2. At the same time, 400 KV Avaada Pooling SL_BKN_PG (AEPL)-Bikaner(PG) (AEPL) Ckt-1 (carrying 727MW) also tripped on maloperation of SOTF protection. With the tripping of line, solar generation of approx. 727MW at Avaada also tripped due to loss of evacuation path.	50.09	49.96	-0.13

			3. During same time, drop in solar generation is observed at many other RE stations connected at different RE pooling stations. Drop in total solar generation was approx. 3507MW (including Avaada solar generation) and pooling stations wise RE generation loss is: Bhadla(PG): 216MW, Bhadla2(PG): 297MW, Fatehgarh2(PG):1115MW, Adani Solar park: 646MW & Bikaner(PG): 1213MW. 4. Hence, generation loss of 3507MW has been considered for FRC calculation.			

Status of Data received till date:

Status of Field Data received of FRC of Grid event occurred at Rajasthan RE complex at 13:42 Hrs on 09.07.2022			
Data Received from		**Data Not Received from**	
Koteshwar HEP	Karcham HEP	Uttarakhand	Rihand NTPC
NHPC	UP	Punjab	APCPL Jhajjar
Rajasthan	Dadri NTPC	Haryana	Rampur HEP
Singrauli NTPC	AD Hydro HEP	HP	NJHPC
Koldam NTPC		BBMB	Unchhahar NTPC
		Delhi	

PFR as per NRLDC SCADA data and generators field data:

Primary Frequency Response by Generators during Grid Event occurred at Rajasthan RE complex at 13:42 Hrs on 09.07.2022				
Sr. No	**Generating stations**	**FRC as per NRLDC SCADA data (in %)**	**FRC as per generator data (in %)**	**Response category/Remark**
1	AD Hydro HEP Unit-1	69%	211%	Satisfactory PFR Response
2	AD Hydro HEP Unit-1		-3%	No Response
3	Dadri TPS Stage-1 Unit-1	106%	107.5%	Satisfactory PFR Response
4	Dadri TPS Stage-1 Unit-2		109.5%	
5	Dadri TPS Stage-1 Unit-3		88.3%	
6	Dadri TPS Stage-1 Unit-4		74%	
7	Dadri TPS Stage-2 Unit-1	134%	107%	Satisfactory PFR Response
8	Dadri TPS Stage-2 Unit-2		107%	
9	Sewa-II HEP	160%	137%	Satisfactory PFR Response
10	Singrauli Unit-6	13%	8%	Unsatisfactory PFR Response
11	Singrauli Unit-7		20%	
12	KTPS Unit-5	21%	60%	Unsatisfactory PFR Response
13	Anpara C Unit-1	63%	48%	Unsatisfactory PFR Response (early die out of response)
14	Anpara C Unit-2		39%	
15	Harduaganj Unit-8	-1%	174%	Satisfactory PFR Response
16	Harduaganj Unit-9		134%	

Sr. No	**Generating stations**	**FRC as per NRLDC SCADA data (in %)**	**FRC as per generator data (in %)**	**Response category/Remark**
17	Lalitpur Unit-1	112%	12%	Poor PFR Response (early die out of response)
18	Lalitpur Unit-2		84%	Satisfactory PFR Response (early die out of response)
19	Lalitpur Unit-3		12%	Poor PFR Response (early die out of response)
20	Paricha C Unit-5	19%	17%	Poor PFR Response
21	Paricha C Unit-6		62%	Unsatisfactory PFR Response
22	Koldam NTPC	48%	47%	Unsatisfactory PFR Response

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

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

Follow up issues from previous OCC meetings

Annexure-A.I

<table>
<tr><td>1</td><td>Down Stream network by State utilities from ISTS Station</td><td>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.</td><td>List of downstream networks is enclosed in Annexure-A.I.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Sep-2019
◎ DELHI — Jul-2022
◎ HARYANA — Mar-2022
◎ HP — Jan-2022
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Aug-2021
◎ RAJASTHAN — May-2022
◎ UP — Jun-2022
◎ UTTARAKHAND — Jul-2022
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td>3</td><td>Healthiness of defence mechanism: Self-certification</td><td>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”.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Not Available
◎ DELHI — Mar-2022
◎ HARYANA — Jun-2022
◎ HP — Jun-2022
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Mar-2022
◎ RAJASTHAN — Mar-2022
◎ UP — Jun-2022
◎ UTTARAKHAND — Jun-2022
◎ BBMB — Jun-2022
All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quartely basis for the rest .</td></tr>
<tr><td></td><td></td><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td>Status:
◎ CHANDIGARH — Not Available
◎ DELHI — Increased
◎ HARYANA — Increased
◎ HP — Increased
◎ J&K and LADAKH — Not increased
◎ PUNJAB — Increased
◎ RAJASTHAN — Increased
◎ UP — Increased
◎ UTTARAKHAND — Increased
◎ BBMB — Increased</td></tr>
</table>

			BBMB was requested to submit the updated self certification report indicating increase of 0.2 Hz in AUFR settings, within one week. J&K and LADAKH were requested to update status for increasing settings of UFRs.
4	Status of FGD installation vis-à-vis installation plan at identified TPS	List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed. Further, progress of FGD installation work on monthly basis is monitored in OCC meetings.	Status of the information submission (month) from states / utilities is as under: ◎ HARYANA Mar-2022 ◎ PUNJAB Jul-2022 ◎ RAJASTHAN Aug-2022 ◎ UP Jun-2022 ◎ NTPC Feb-2022 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	Status of Automatic Demand Management Sysytem in NR states/UT's	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:	Status: ◎ DELHI Fully implemented ◎ HARYANA Scheme not implemented ◎ HP Scheme not implemented ◎ PUNJAB Scheme not implemented ◎ RAJASTHAN Under implementation ◎ UP Scheme implemented by NPCIL only

7	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	Price bid has been opened and is under evaluation
xi	RAJASTHAN	Akal	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. 2nd instalment has been received on dt. 30.07.2021. The erection work of 3 Reactors is under progress and shall be commissioned by 31.08.2022

xii	RAJASTHAN	Bikaner	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. 2nd instalment has been received on dt. 30.07.2021. The erection work of 3 Reactors is under progress and shall be commissioned by 31.08.2022
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. 2nd instalment has been received on dt. 30.07.2021. The erection work of 3 Reactors is under progress and shall be commissioned by 31.08.2022
xiv	RAJASTHAN	Barmer & others	13x25 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 &work order placed on dt. 7.04.2022 to M/s Kanohar Electricals Ltd.
xv	RAJASTHAN	Jodhpur	1x125 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 &work order placed on dt. 7.04.2022 to M/s Kanohar Electricals Ltd.

Annexure-A-I.I

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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	-	PDD, J&K to update the status.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	-	PDD, J&K to update the status.
				• 220 kV New Wanpoh - Mattan D/c Line	-	PDD, J&K to update the status.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 6 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	-	PDD, J&K to update the status.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	-	HVPNL to update the status.
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1 Total: 7	Utilized: 5 Unutilized: 1 (1 bays to be utilized shortly) Approved/Under Implementation:1	• 220 kV D/C Shahajahanpur (PG) - Gola line	Oct'22	Updated in 196th OCC by UPPTCL
				• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG)	Commissioned	Energization date: 25.02.2022 updated by UPPTCL in 196th OCC
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4 (2 bays to be utilized shortly)	• 220 kV Hamirpur-Dehan D/c line	Mar'22	Updated in 192nd OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Dec'22	Updated in 197th OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Dec'22	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Apr'24	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0 Approved:4	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	May'24	Updated in 197th OCC by HVPNL
11	400/220kV Tughlakabad GIS	Commissioned: 6 Under Implementation: 4 Total: 10	Utilized: 6 Unutilized: 0 Under Implementation:4	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	-	DTL to update the status.
				• Masjid Mor – Tughlakabad 220kV D/c line.	-	DTL to update the status.
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Jan'23	Updated in 192nd OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur	Commissioned: 8	Utilized: 0	• 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.	Mar'23	Updated in 197th OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
13	Sub-station	Total: 8	Unutilized: 8	• 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	May'23	Updated in 197th OCC by HVPNL
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	Jun'23	Updated in 197th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	Jun'23	Updated in 197th OCC by HVPNL
15	400/220kV Prithla Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	-	HVPNL to update the status.
				• 220kV D/C for Sector78, Faridabad	-	HVPNL to update the status.
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 2 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat		HVPNL to update the status.
				• Sonepat - HSIISC Rai 220kV D/c line	Nov'22	Updated in 196th OCC by HVPNL
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG)	Oct'22	In Tendering stage as updated in 192nd OCC by RVPNL.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	Bid documents under approval as updated in 195th OCC by RVPNL.
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	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line comiisioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	Oct'22	• Lucknow -Kaurasa (Sitapur), 220 kV D/C line expected energization date Oct'22 updated by UPPTCL in 196th OCC • No planning for 2 no. of bays upated by UPPTCL in 196th OCC
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	Dec'22	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line expected energization date Dec'22 updated by UPPCL in 196th OCC
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 intimated that 02 no. of bays under finalization stage • No planning for 2 no. of bays updated by UPPTCL in 196th OCC
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	Aug'22	Updated in 196th OCC by HVPNL
25	400/220kV Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 Out of these 10 nos. 220kV Line Bays, 2 bays would be used by the lines being constructed by POWERGRID (Chandigarh-2) and balance 8 nos. bays would be used by HVPNL	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Pinjore 220kV D/c line	31.12.2022	Updated in 194th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	31.12.2022	Updated in 194th OCC by HVPNL
				• Panchkula – Raiwali 220kV D/c line	Commissioned	Updated in 194th OCC by HVPNL
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	Sept'23	Updated in 194th OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Unutilized: 1 Approved in 50th NRPC- 1 no.	• Amritsar – Patti 220kV S/c line	-	PSTCL to update the status.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	-	PSTCL to update the status.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	·• Bagpat - Modipuram 220kV D/c line	Aug'22	Updated in 196th OCC by UPPTCL
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:2 Unutilized: 2	• Network to be planned for 2 bays.	-	LILO case of 220 kV Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG) is under WTD approval as updated by RVPNL in 195th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	-	RVPNL to update the status
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	HVPNL to update the status
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	Sept'22	Saharanpur(PG)-Devband D/c line expected energization date Sept'22 updated by UPPTCL in 196th OCC
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	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC
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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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 (25.02.2022)
MEJA Stage-I (Updated by UP on 18.06.2022)
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (18.06.2022)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (21.07.2022)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (08.08.2022)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Lalitpur Power Gen. Co. Ltd. (18.06.2022)
Lalitpur TPS
Lanco Anpara Power Ltd. (18.06.2022)
ANPARA-C TPS

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

Adani Power Ltd. (18.02.2022)
KAWAI TPS

Rosa Power Supply Company (18.06.2022)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (18.06.2022)
Prayagraj TPP
APCPL (25.02.2022)
INDIRA GANDHI STPP

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB

NTPC
DADRI (NCTPP)
Talwandi Sabo Power Ltd.
TALWANDI SABO TPP
L&T Power Development Ltd.
Nabha TPP (Rajpura TPP)

Target Dates for FGD Commissioning (Utility-wise)

Adani Power Ltd.	KAWAI TPS U#1 (Target: 31-12-2024), KAWAI TPS U#2 (Target: 31-12-2024)
APCPL	INDIRA GANDHI STPP U#1 (Target: 30-09-2022), INDIRA GANDHI STPP U#2 (Target: 30-09-2022), INDIRA GANDHI STPP U#3 (Target: 30-09-2022)
GVK Power Ltd.	GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020)
HGPCL	PANIPAT TPS U#6 (Target: 30-04-2021), PANIPAT TPS U#7 (Target: 28-02-2021), PANIPAT TPS U#8 (Target: 31-12-2020), RAJIV GANDHI TPS U#1 (Target: 30-04-2022), RAJIV GANDHI TPS U#2 (Target: 28-02-2022), YAMUNA NAGAR TPS U#1 (Target: 31-12-2021), YAMUNA NAGAR TPS U#2 (Target: 31-10-2021)

NTPC	DADRI (NCTPP) U#1 (Target: 31-12-2020), DADRI (NCTPP) U#2 (Target: 31-10-2020), DADRI (NCTPP) U#3 (Target: 31-08-2020), DADRI (NCTPP) U#4 (Target: 30-06-2020), DADRI (NCTPP) U#5 (Target: 30-06-2022), DADRI (NCTPP) U#6 (Target: 30-06-2022), RIHAND STPS U#1 (Target: 30-06-2024), RIHAND STPS U#2 (Target: 30-06-2024), RIHAND STPS U#3 (Target: 31-12-2023), RIHAND STPS U#4 (Target: 31-12-2023), RIHAND STPS U#5 (Target: 30-06-2023), RIHAND STPS U#6 (Target: 30-06-2023), SINGRAULI STPS U#1 (Target: 30-06-2024), SINGRAULI STPS U#2 (Target: 30-06-2024), SINGRAULI STPS U#3 (Target: 30-06-2024), SINGRAULI STPS U#4 (Target: 30-06-2024), SINGRAULI STPS U#5 (Target: 30-06-2024), SINGRAULI STPS U#6 (Target: 31-03-2023), SINGRAULI STPS U#7 (Target: 31-03-2023), UNCHAHAR TPS U#1 (Target: 31-12-2023), UNCHAHAR TPS U#2 (Target: 31-12-2023), UNCHAHAR TPS U#3 (Target: 30-06-2024), UNCHAHAR TPS U#4 (Target: 30-06-2024), UNCHAHAR TPS U#5 (Target: 30-06-2024), UNCHAHAR TPS U#6 (Target: 30-06-2022), MEJA Stage-I U#1 (Target: 31-12-2022), MEJA Stage-I U#2 (Target: 31-03-2023), TANDA Stage-I U#3 (Target:), TANDA Stage-I U#4 (Target:), TANDA Stage-II U#3 (Target: 31-12-2022), TANDA Stage-II U#4 (Target: 31-12-2022)

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

Rosa Power Supply Company	ROSA TPP Ph-I U#1 (Target: 31-12-2024), ROSA TPP Ph-I U#2 (Target: 31-12-2024), ROSA TPP Ph-I U#3 (Target: 31-12-2024), ROSA TPP Ph-I U#4 (Target: 31-12-2024)
RRVUNL	KOTA TPS U#5 (Target: 31-08-2024), KOTA TPS U#6 (Target: 31-08-2024), KOTA TPS U#7 (Target: 31-08-2024), SURATGARH TPS U#1 (Target: 31-12-2024), SURATGARH TPS U#2 (Target: 31-12-2024), SURATGARH TPS U#3 (Target: 31-12-2024), SURATGARH TPS U#4 (Target: 31-12-2024), SURATGARH TPS U#5 (Target: 31-12-2024), SURATGARH TPS U#6 (Target: 31-12-2024), SURATGARH SCTPS U#7 (Target: 31-12-2024), SURATGARH SCTPS U#8 (Target: 31-12-2024), CHHABRA TPP U#1 (Target: 31-12-2024), CHHABRA TPP U#2 (Target: 31-12-2024), CHHABRA TPP U#3 (Target: 31-12-2024), CHHABRA TPP U#4 (Target: 31-12-2024), CHHABRA SCPP U#5 (Target: 31-12-2024), CHHABRA SCPP U#6 (Target: 31-12-2024), KALISINDH TPS U#1 (Target: 31-12-2024), KALISINDH TPS U#2 (Target: 31-12-2024)
Talwandi Sabo Power Ltd.	TALWANDI SABO TPP U#1 (Target: 28-02-2021), TALWANDI SABO TPP U#2 (Target: 31-12-2020), TALWANDI SABO TPP U#3 (Target: 31-10-2020)
UPRVUNL	ANPARA TPS U#1 (Target: 31-12-2023), ANPARA TPS U#2 (Target: 31-12-2023), ANPARA TPS U#3 (Target: 31-12-2023), ANPARA TPS U#4 (Target: 31-12-2023), ANPARA TPS U#5 (Target: 31-12-2023), ANPARA TPS U#6 (Target: 31-12-2023), ANPARA TPS U#7 (Target: 31-12-2023), HARDUAGANJ TPS U#8 (Target: 31-12-2024), HARDUAGANJ TPS U#9 (Target: 31-12-2024), OBRA TPS U#9 (Target: 31-12-2024), OBRA TPS U#10 (Target: 31-12-2024), OBRA TPS U#11 (Target: 31-12-2024), OBRA TPS U#12 (Target: 31-12-2024), OBRA TPS U#13 (Target: 31-12-2024), PARICHHA TPS U#3 (Target: 30-04-2022), PARICHHA TPS U#4 (Target: 31-12-2024), PARICHHA TPS U#5 (Target: 31-12-2024), PARICHHA TPS U#6 (Target: 31-12-2024)

MIS Report for Status of Islanding Schemes

Implemented Schemes

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

Under Implementation/ Newly Proposed/Under Discussion

Sl. No.	Islanding Scheme	SLDC	Status	Details of progress	DPR for PSDF funding (Required	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 conducted steady state study and the same has been discussed in meeting with UP on 07.07.2022. Finalized scheme is awaited from UP.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Newly Proposed	UP has got offer from CPRI for study. The estimated time of study is 5 months from date of acceptance. Acceptance of offer is awaited at UP end.		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Newly Proposed	Scheme has been approved in 195th OCC meeting.	-	-		-	-	-	-	-	-	-	-
4	Patiala-Nabha Power Rajpura IS	Punjab	Newly Proposed	Punjab has sent the offer to CPRI for study of Islanding Schemes.		-		-	-	-	-	-	-	-	-
5	Pathankot-RSD IS	Punjab	Newly Proposed	Punjab has sent the offer to CPRI for study of Islanding Schemes.		-		-	-	-	-	-	-	-	-
6	Talwandi Sabo IS	Punjab	Newly Proposed	Punjab has sent the offer to CPRI for study of Islanding Schemes.		-		-	-	-	-	-	-	-	-
7	Dehradun IS	Uttarakhand	Newly Proposed	Matter is pending at Uttarakhand SLDC for finalization/rejection of scheme.		-	-	-	-	-	-	-	-	-	-
8	Jammu-Salal IS	J &K	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
9	Suratgarh IS	Rajasthan	Under Discussion	Scheme has been approved in 195th OCC meeting.	-	-		-	-	-	-	-	-	-	-
10	Chamba-Chamera IS	HP	Withdrawn	Scheme has been withdrawn by HPSLDC in meeting dtd. 15/07/2022.		-	-	-	-	-	-	-	-	-	-
11	Kangra-Chamba-Bairasuil IS	HP	Withdrawn	Scheme has been withdrawn by HPSLDC in meeting dtd. 15/07/2022.		-	-	-	-	-	-	-	-	-	-
12	Kullu-Dehar IS	HP	Withdrawn	HP has withdrwan this scheme and has proposed Kullu-Manali-Mandi islanding scheme, and Shimla-Solan Islanding scheme in meeting dtd. 15/07/2022.		-	-	-	-	-	-	-	-	-	-
13	Kullu-Manali-Mandi IS	HP	Newly Proposed	Scheme has been discussed on 15/07/2022. Finalization of scheme is pending at HP end.											
14	Shimla-Solan IS	HP	Newly Proposed	Scheme has been discussed on 15/07/2022. Finalization of scheme is pending at HP end.											
13	Butari-Jamsher-Verpal IS	Punjab	Under Discussion	-		-	-	-	-	-	-	-	-	-	-
14	Kargil-Ladakh IS	Ladakh	Under Discussion	-		-	-	-	-	-	-	-	-	-	-

RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED.
[Corporate Identity Number (CIN):U40109RJ2000SGC016485]
(Regd. Office: Vidyut Bhawan, Jan Path, Jyoti Nagar, Jaipur - 302 005)
OFFICE OF THE SUPERINTENDING ENGINEER (PROJECT & PLANNING)
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RVPN An ISO 9001:2000 Certified Company

No. RVPN/SE(P&P)/XEN-2(P&P)/AE-2/ F. /D 799 Jaipur, Dt. 8/7/22

The Member Secretary,
NRPC, 18A, Shaheed Jeet Singh Marg,
Katwaria Sarai, New Delhi-110016.

Sub: Regarding inclusion of agenda on assessment & usability of the Interstate lines i.e. 220 kV S/C MIA (Alwar) -BTPS (Badarpur) Line and 132 kV S/C Hisar-Sadulpur (Rajgarh) in next NRPC Meeting.

Dear Sir,

On the above cited subject, it is submitted that the Interstate lines i.e. 220 kV S/C MIA (Alwar) -BTPS (Badarpur) and 132 kV S/C Hisar-Sadulpur (Rajgarh) lines are very old and the line condition is deteriorating day by day resulting in frequently breaking of line conductor and its accessories.

In this regard, kindly find enclosed herewith the agenda on assessment & usability of these Interstate lines i.e. 220 kV S/C MIA (Alwar) -BTPS (Badarpur) line and 132 kV S/C Hisar-Sadulpur (Rajgarh) line for deliberation & decision in next NRPC Meeting.

Encl: as above.

Your's faithfully,

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

Agenda Note for consideration & decision on Capital Expenditure to be incurred on Renovation & Refurbishment of existing Interstate lines i.e. 220 kV S/C MIA (Alwar) - BTPS (Badarpur) Line and 132 kV S/C Hisar-Sadulpur (Rajgarh) line

I. BACKGROUND & DETAILS:

There is an interstate line i.e. 220 kV S/C MIA (Alwar) -BTPS (Badarpur) owned by RVPN, commissioned in 1976, line length 131 kms., 428 nos. towers involved & present book value is Rs.1.08 Crore. The line condition is deteriorating day by day resulting in frequently breaking of line conductor and earth wire. The line is charged since 07.10.2020 on No Load. In normal conditions, there is no use of said line at 220 kV GSS MIA from loading point of view. The Yearly Transmission Charges (YTC) allowed by CERC in petition no. 362/TT/2019 for the said line is 64.02 lakh. The case for the refurbishment work of 220 kV S/C MIA (Alwar) -BTPS (Badarpur) as R&M requires 9.89 crores and still after spending Rs. 9.89 crores, only half of the line is refurbished.

Similarly, another interstate line i.e. 132 kV S/C Hisar-Sadulpur (Rajgarh) line interconnecting 220 kV GSS BBMB Hisar and 132 kV GSS Sadulpur (Rajgarh) is owned by RVPN, commissioned on dated 13.12.1959, line length 78 kms., 281 nos. towers involved & present book value is Rs. 8.57 Crore. The line condition is also deteriorating. Generally, this line remains charged on no-load since commissioning of 132 kV Bhadra-Sadulpur line in the year 2010 and there is no use of said line and may be dismantled. The Yearly Transmission Charges (YTC) allowed by CERC in petition no. 362/TT/2019 for the said line is 37.94 lakh. The YTC allowed is only towards O&M expenses and interest on working capital as useful life of 25 years has already been over. The work of replacement of line conductor with associated hardware, disc insulator, etc. requires estimated cost amounting Rs.7.021 crores.

II. DELIBERATION/DECISION:

Based on the above facts as discussed above, the following is to be deliberated in NRPC meeting:

i. Assessment & usability of these Interstate lines i.e. 220 kV S/C MIA (Alwar) - BTPS (Badarpur) line and 132 kV S/C Hisar-Sadulpur (Rajgarh) line.

ii. Recovery of capital expenditure on renovation & refurbishment through YTC for these Interstate lines, in case NRPC decides to retain these Interstate lines.

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

उत्तरी क्षेत्रीय भार प्रेषण 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: U40105L2009GOI188682, Website: www.nrldc.org, www.nrldc.in, Tel.: 01126519406, 26523869, Fax: 011-26852747

संदर्भ सं° : उ.क्षे.भा.प्रे.कें/प्र.सं/151/ **दिनांक : 28 जून, 2022**

सेवा मे,

प्रबंध संचालक,
जम्मू और कश्मीर पावर ट्रांसमिशन कॉर्पोरेशन लिमिटेड,
सिविल सचिवालय, जम्मू.

विषय : Regarding Double Main Transfer (DMT) bus arrangement at JKPTCL Substations .

महोदय,

The complete shutdown of 220/132 kV Hiranagar substation was taken by JKPTCL on 29.05.2022. The complete shutdown of the station was necessitated in view of only Single Bus and Transfer scheme at Hiranagar and is also resulting in loss of generation at Sewa-II and load loss at Kathua and Hiranagar. However to minimize power outage, NRLDC proposed to operate Sewa-II units in islanded mode with the load of Kathua and Mahanpur station of J&K. This attempt was only partially successful in view of load generation mismatch, lack of telemetry etc. Further, discussions and coordination would be done to make it a complete success.

Further, if Hiranagar bus switching scheme been Double Main & Transfer one, complete outage of 220 kV substation would have been avoided and thus, outage of generation and load. There are other stations in J&K as well with similar deficiency. This issue has also been discussed in the Protection Sub Committee (PSC) and Operation Coordination Committee (OCC) of Northern region in the past. In this regard, please refer the minutes of special meeting held on 28.07.2020 to deliberate on issues related to UT of J&K and Ladakh,

Quote

"Most of the 14 numbers of 220 kV voltage level stations of PDD-J&K have or operated with only one Main and transfer bus scheme instead of double main transfer (DMT) bus arrangement as per CEA planning criteria and therefore bus shutdown requires shutdown of entire station which affects reliability of power supply. J&K representative informed that they are planning to approve the scheme in PSDF scheme-1 to implement the bus sectionaliser / coupler for reliability improvement wherever scope is available. In the new upcoming GIS stations, no such issue will be observed but for existing stations there is space constraint issue. It was also informed that J&K is planning to change the existing transmission lines with HTLS conductor in PSDF scheme-2. SE (O), NRPC requested J&K representative to submit details of substations which are covered under PSDF scheme-1. J&K representative informed that there are 6-7 stations where bus coupler

will be implemented; however, exact details and location will be shared later on. J&K representative agreed to further share the complete details of PSDF scheme-1 & 2 by next month."

Unquote

Therefore, it is requested that concerned may please be advised to take action on priority to implement Double Main Transfer (DMT) bus arrangement at all the 220kV substations, which are having single main and transfer bus scheme to avoid load/Generation loss and to improve overall reliability of the system.

सादर धन्यवाद

राजीव पोरवाल
मुख्य महाप्रबंधक (प्रभारी),
उत्तरी क्षेत्र भार प्रेषण केंद्र, नई दिल्ली

विनम्र सूचनार्थ :

1. सदस्य सचिव, उत्तरी क्षेत्र विद्युत् समिति
2. कार्यपालक निदेशक, राष्ट्रीय भार प्रेषण केंद्र
3. सदस्य (पावर सिस्टम) , केंद्रीय विद्युत प्राधिकरण
4. सदस्य (GO & D), केंद्रीय विद्युत प्राधिकरण
5. प्रमुख सचिव (पावर), जम्मू एंड कश्मीर (केंद्र शासित प्रदेश)
6. अध्यक्ष और प्रबंध निदेशक (पोसोको)

पावर सिस्टम ऑपरेशन कॉर्पोरेशन लिमिटेड
(भारत सरकार का उद्यम)
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will be implemented; however, exact details and location will be shared later on. J&K representative agreed to further share the complete details of PSDF scheme-1 & 2 by next month."

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राजीव पोरवाल
मुख्य महाप्रबंधक (प्रभारी),
उत्तरी क्षेत्र भार प्रेषण केंद्र, नई दिल्ली

विनम्र सूचनार्थ :

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2. कार्यपालक निदेशक, राष्ट्रीय भार प्रेषण केंद्र
3. सदस्य (पावर सिस्टम) , केंद्रीय विद्युत प्राधिकरण
4. सदस्य (GO & D), केंद्रीय विद्युत प्राधिकरण
5. प्रमुख सचिव (पावर), जम्मू एंड कश्मीर (केंद्र शासित प्रदेश)
6. अध्यक्ष और प्रबंध निदेशक (पोसोको)

National Load Despatch Centre

Import Capability of Uttar Pradesh for September 2022

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st September 2022 to 30th September 2022	00-24	15100	600	14500	8420	6080		https://www.upsldc.org/documents/20182/0/ttc_atc_24-11-16/4c79978e-35f2-4aef-8c0f-7f30d878dbde
Limiting Constraints		N-1 contingency of 400/220kV Azamgarh, Obra, Mau, 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 September 2022

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st September 2022 to 30th September 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 September 2022

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st September 2022 to 30th September 2022	00-24	9100	600	8500	3000	5500		https://hvpn.org.in/#/atcttc
Limiting Constraints		N-1 contingency of 400/220kV ICTs at Deepalpur, Panipat(BBMB) 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 September 2022

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st September 2022 to 30th September 2022	00-24	7100	300	6800	4150	2650		
Limiting Constraints	N-1 contingency of 400/220kV Mundka, HarshVihar and Mandola ICTs.							

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

National Load Despatch Centre
Import Capability of HP for September 2022

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st September 2022 to 30th September 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						

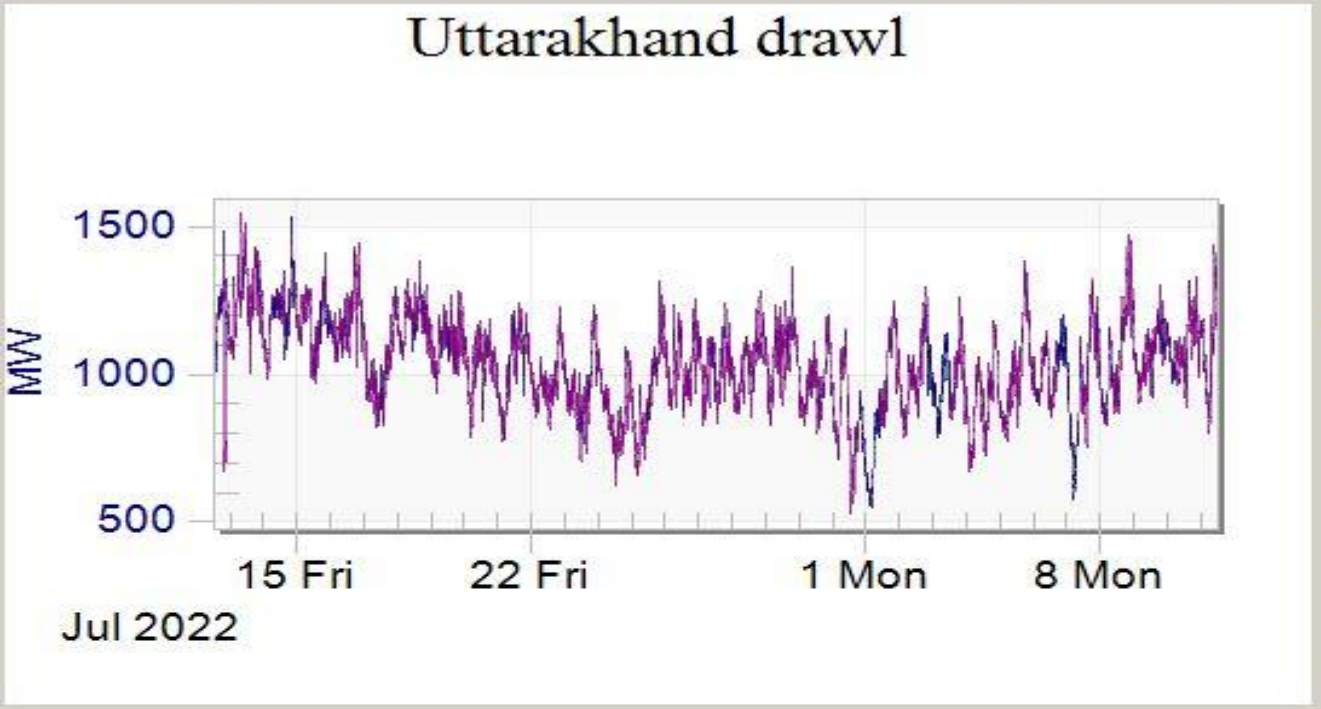
80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

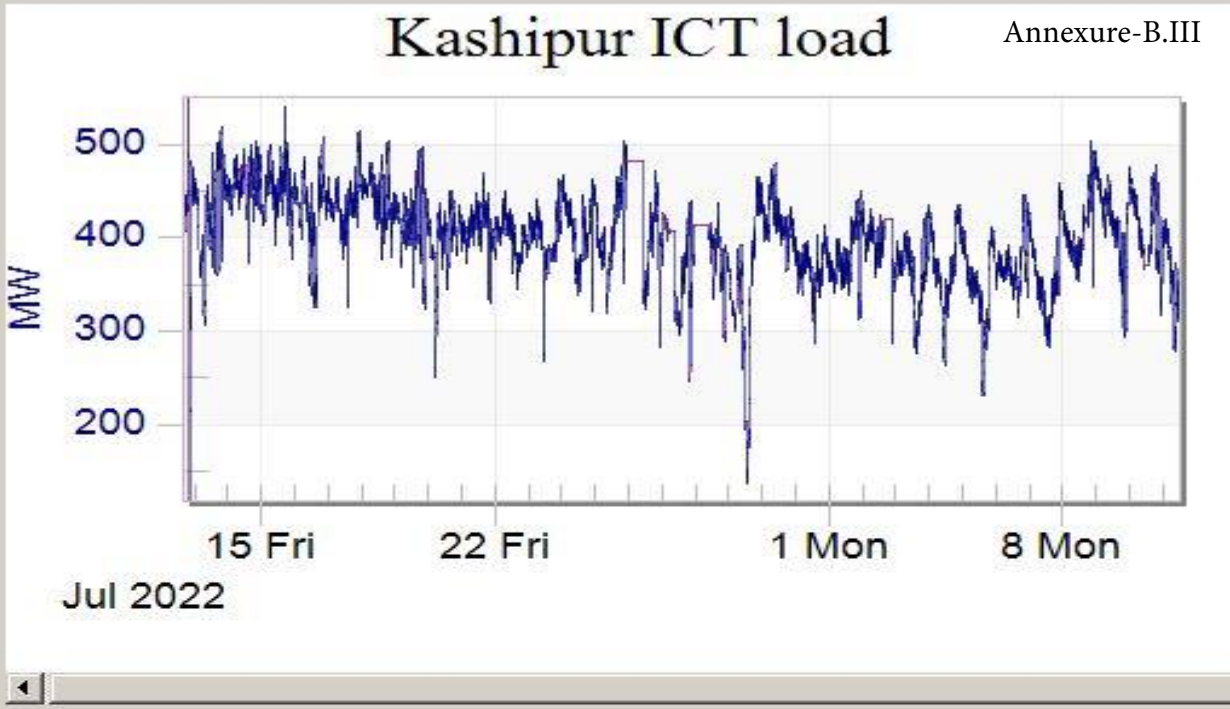
National Load Despatch Centre
Import Capability of Uttarakhand for September 2022

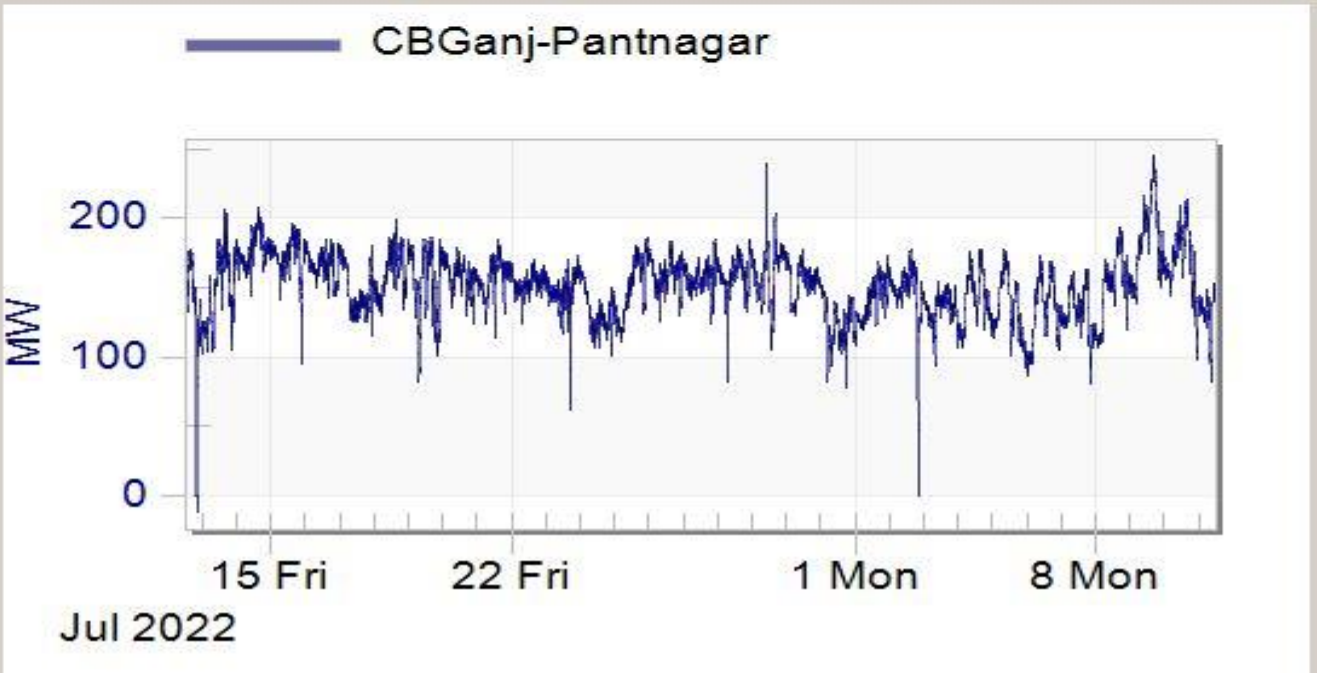
Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st September 2022 to 30th September 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						

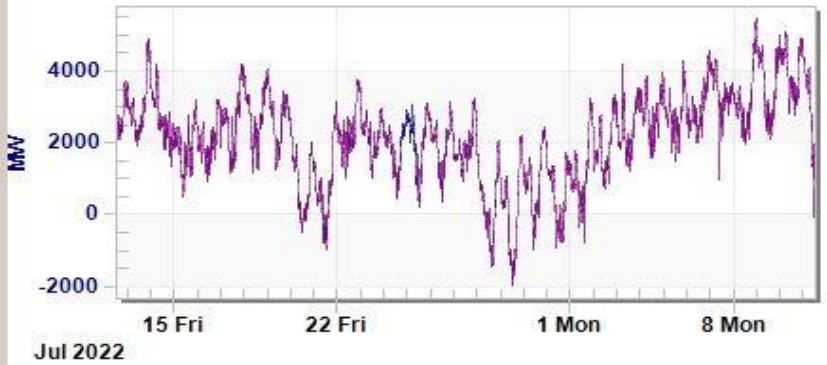
80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages


Uttarakhand drawl
1500
1000
500
MW
15 Fri
22 Fri
1 Mon
8 Mon
Jul 2022

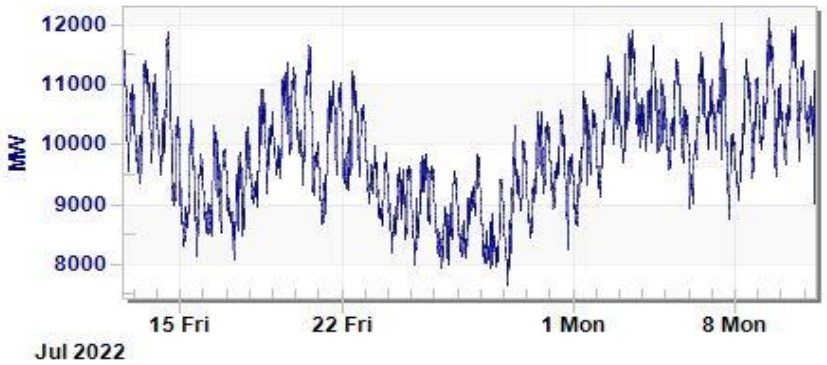

Kashipur ICT load
500
400
300
200
MW
15 Fri
22 Fri
1 Mon
8 Mon
Jul 2022


CBGanj-Pantnagar
200
100
0
MW
15 Fri
22 Fri
1 Mon
8 Mon
Jul 2022

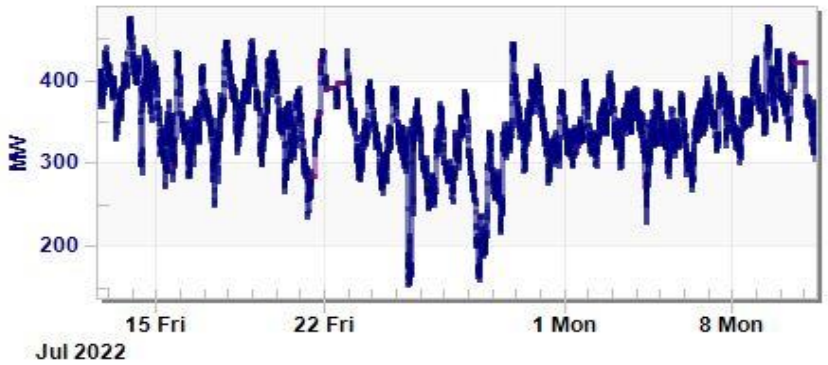
Rajasthan import



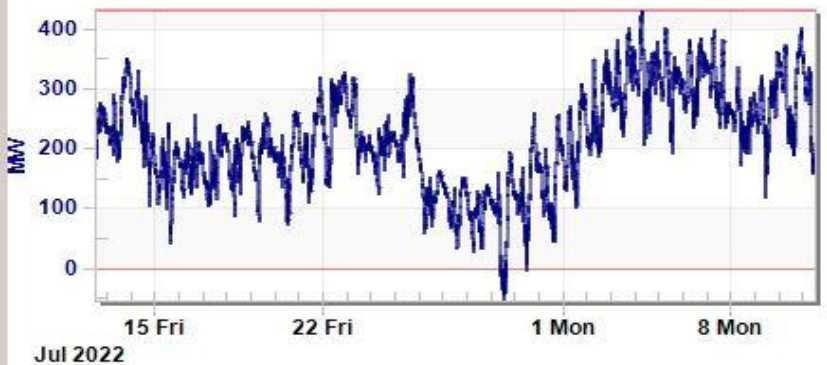
Rajasthan Load



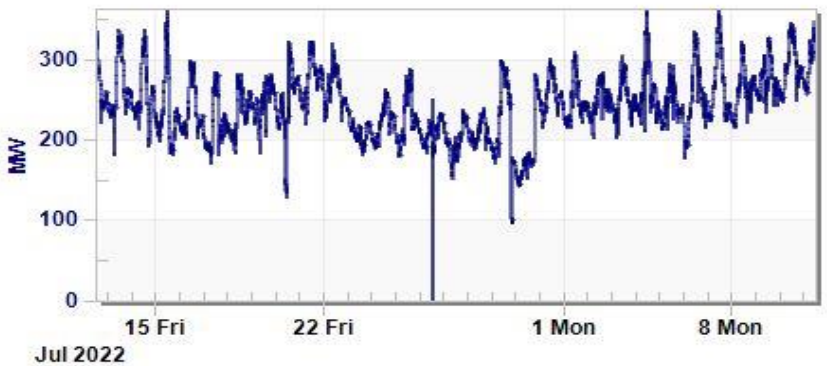
Ajmer ICT loading



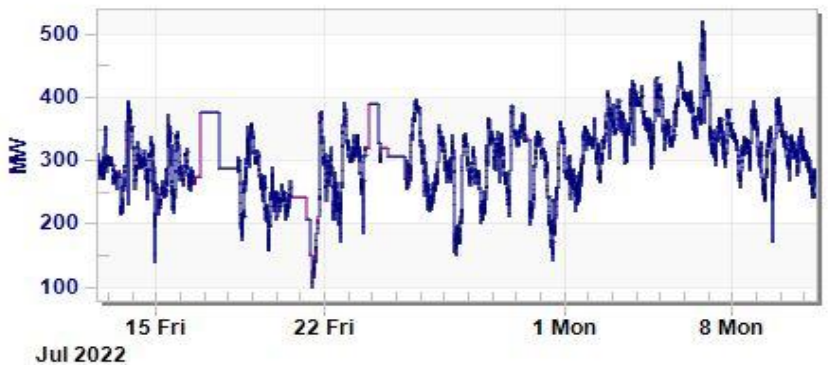
Jodhpur ICT loading



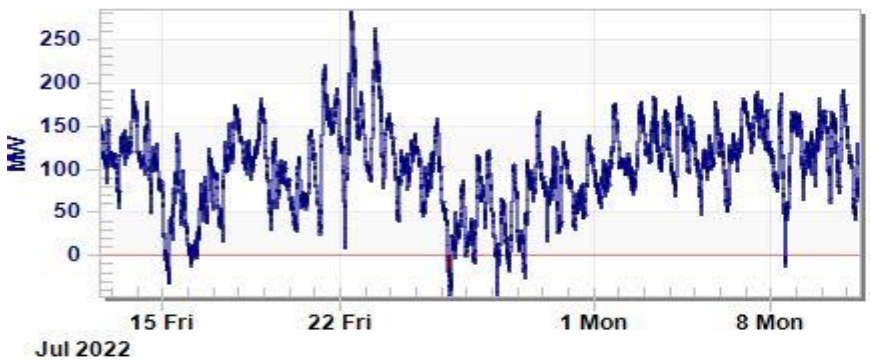
Merta ICT loading



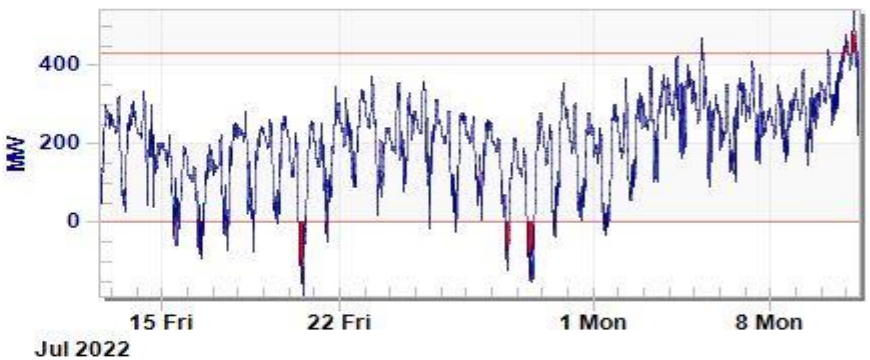
Chittorgarh ICT loading



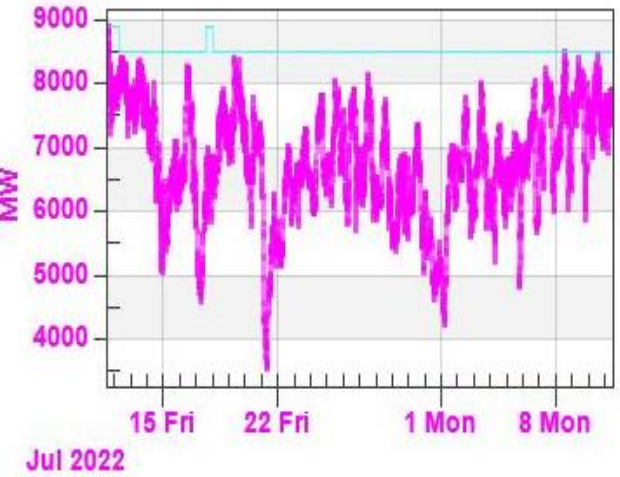
Bhinmal ICT loading



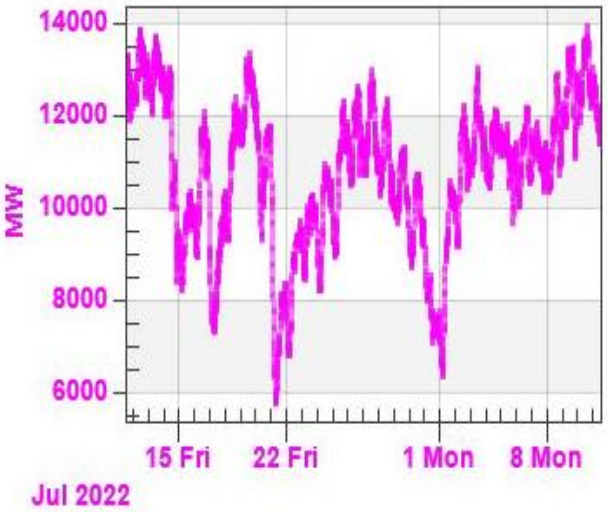
Bikaner ICT loading



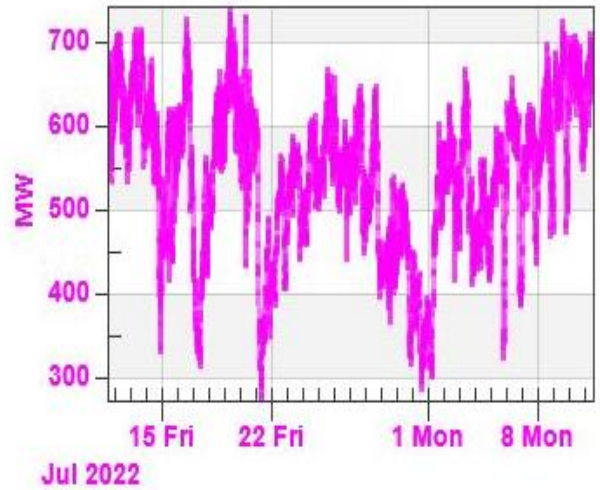
Punjab Import



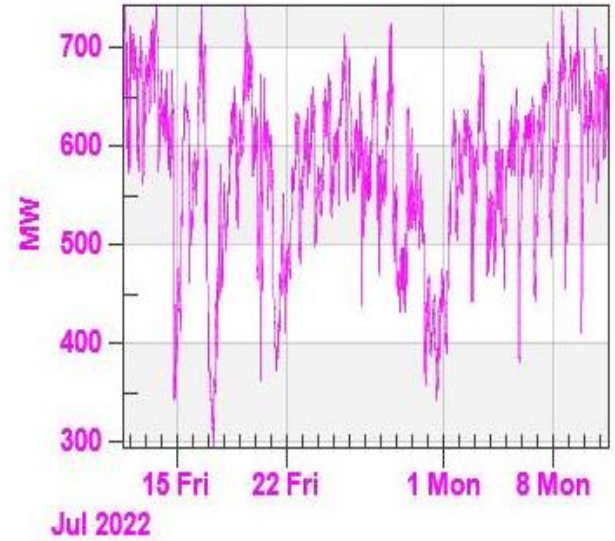
Punjab load



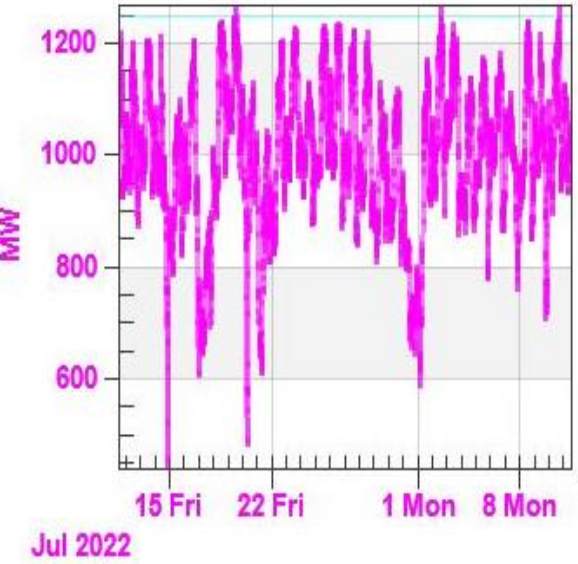
Malerkotla ICT load



Patiala ICT load



Ludhiana ICT load



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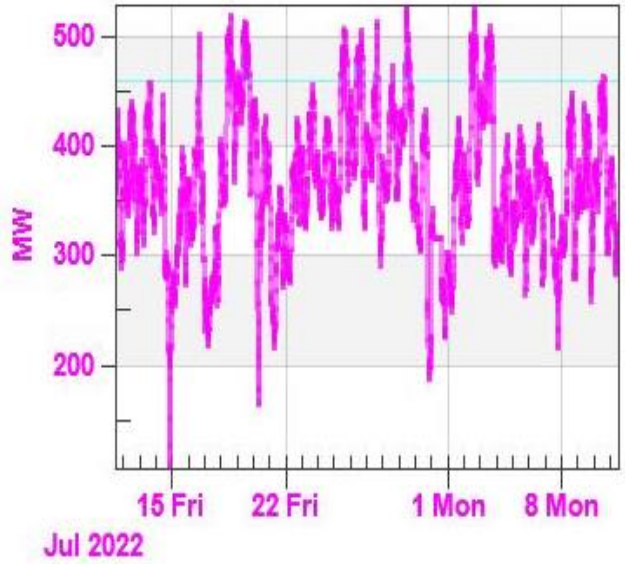
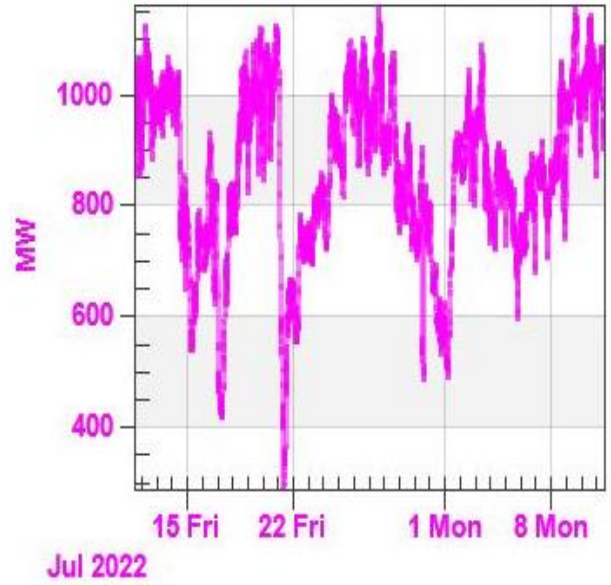


Moga ICT load



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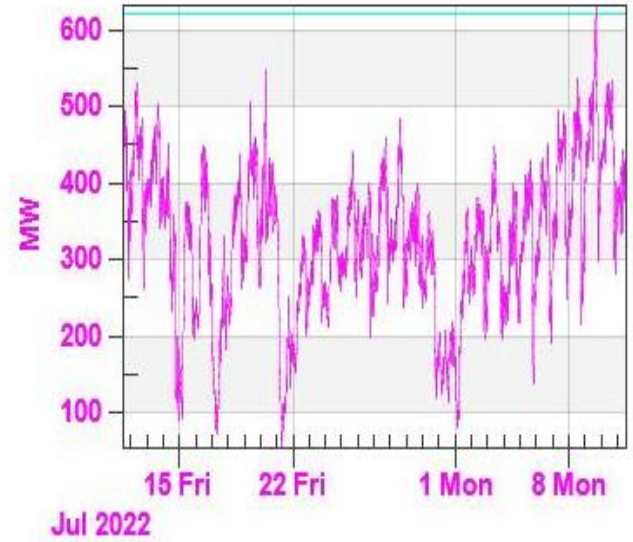
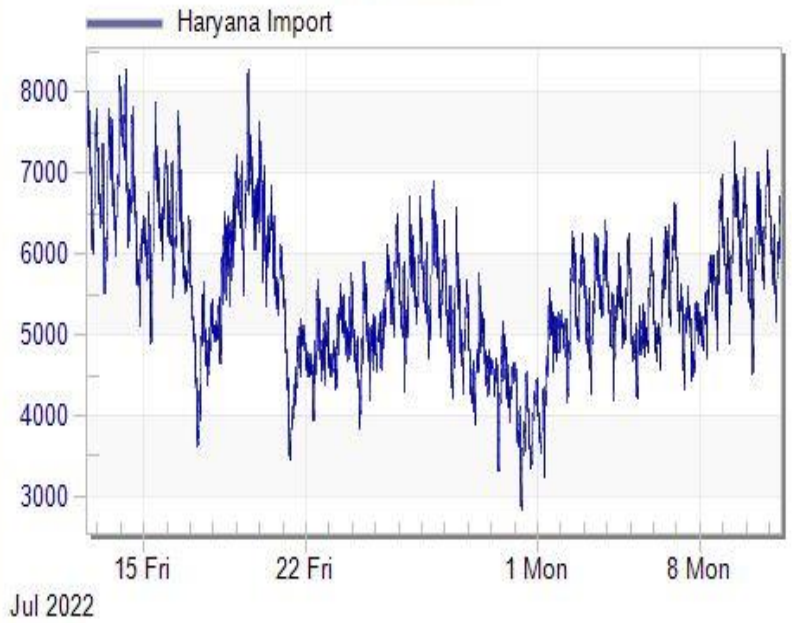
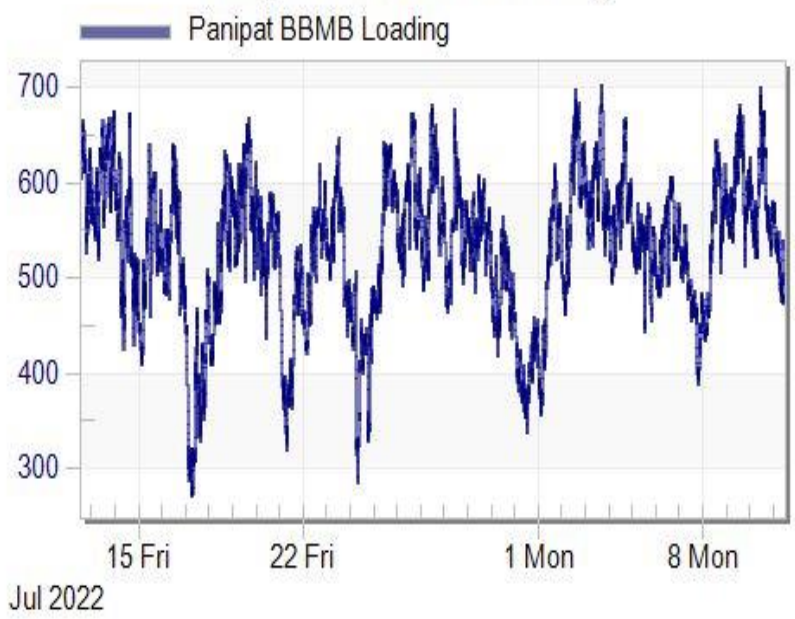


Haryana Import



Panipat BBMB ICT loading



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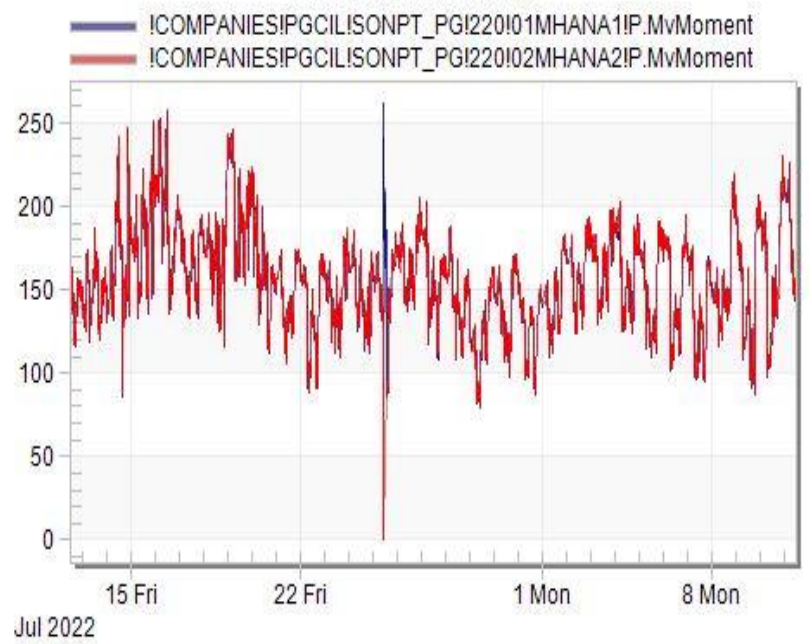
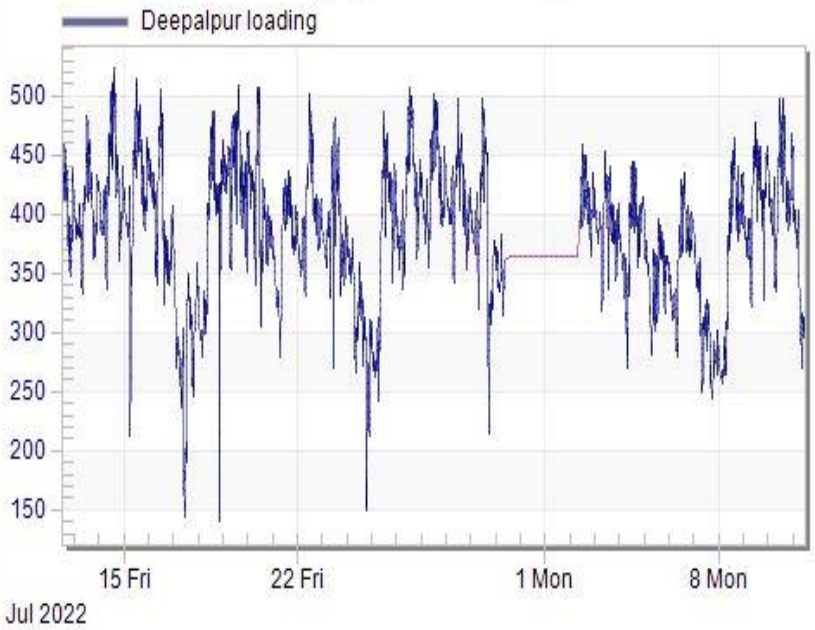
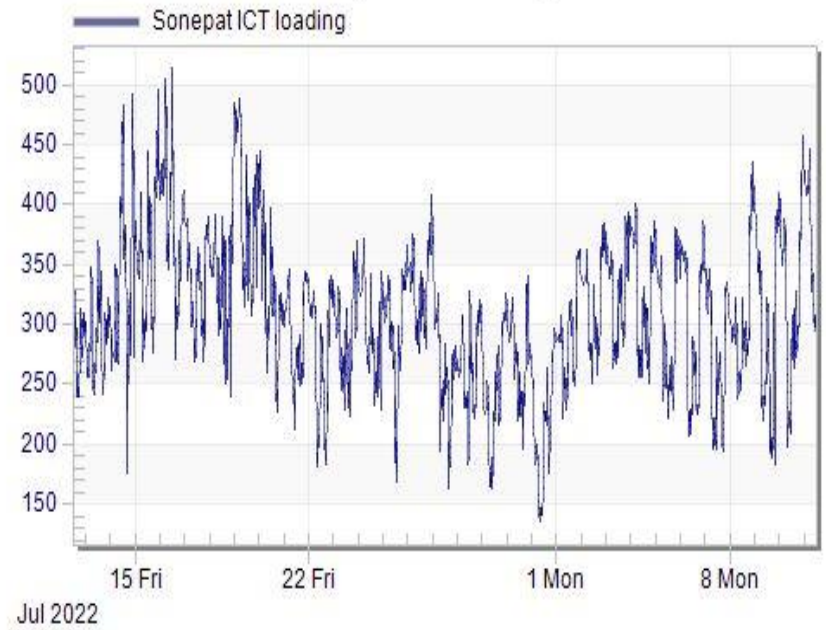


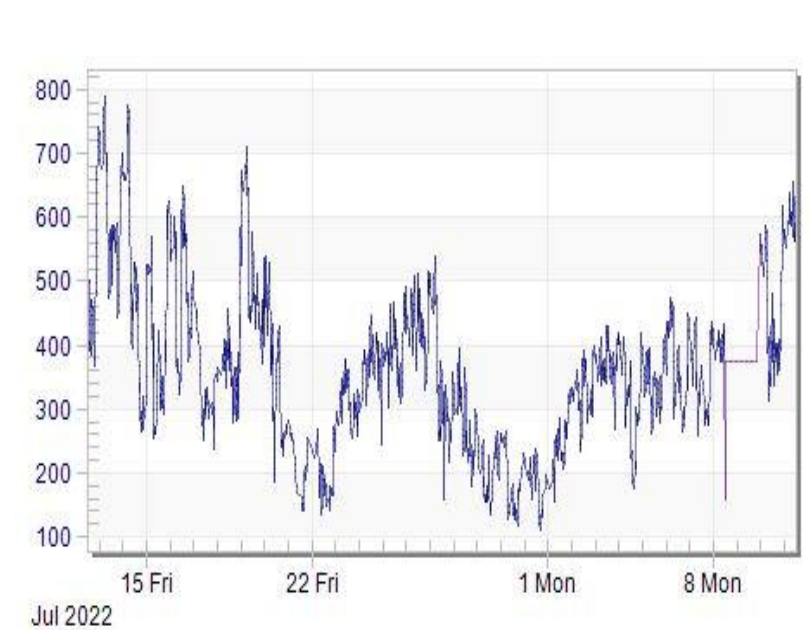
Deepalpur ICT loading



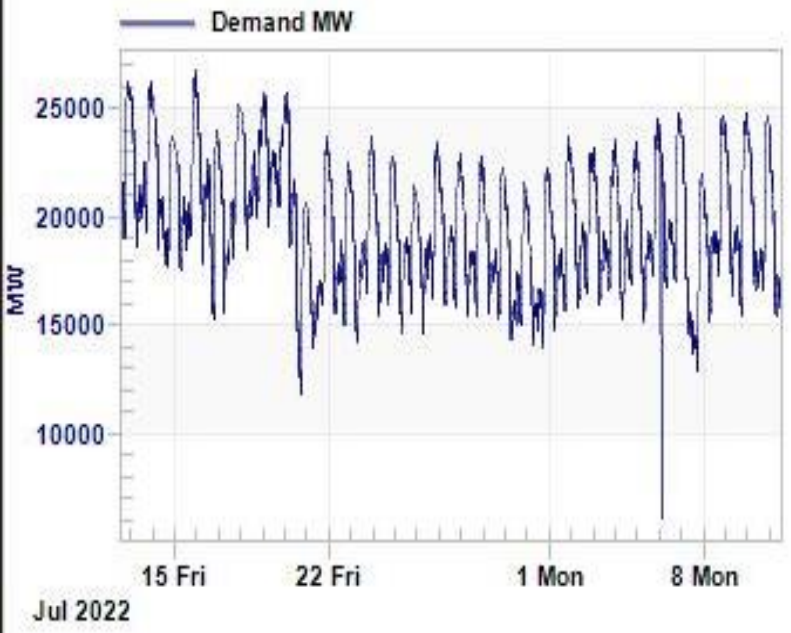
Sonepat ICT loading



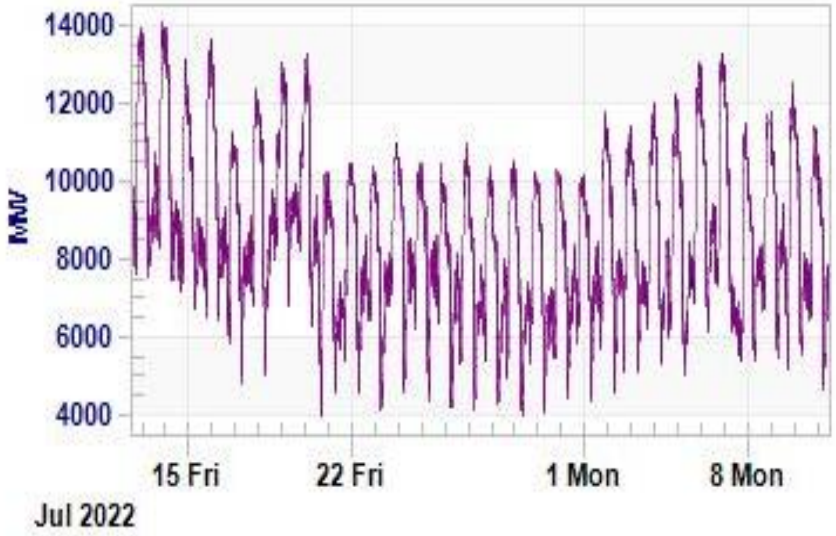
Kurukshetra ICT



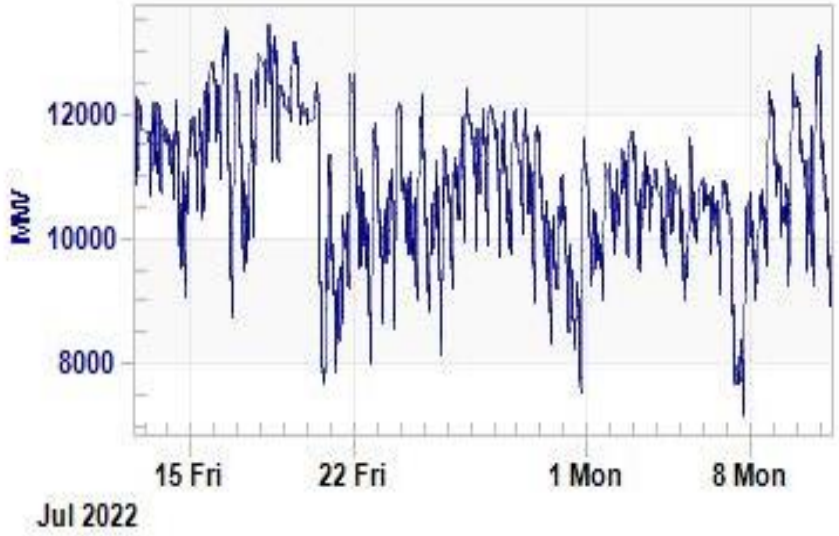
UP Demand



UP Import



UP own generation



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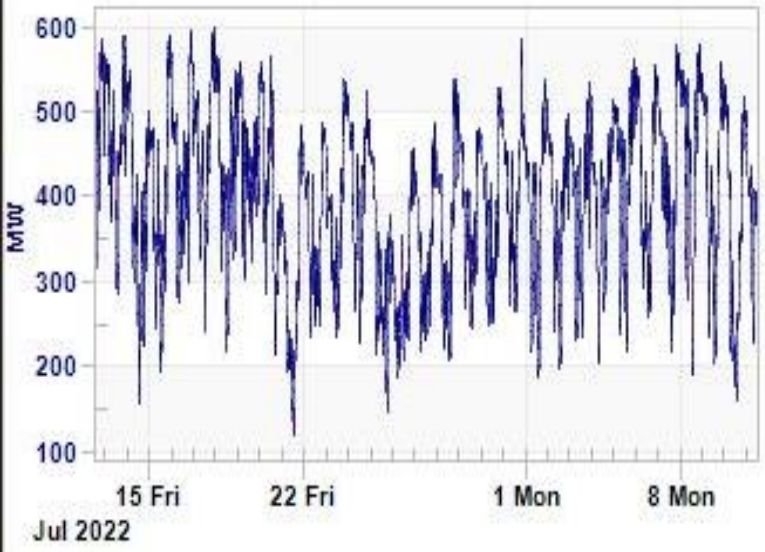

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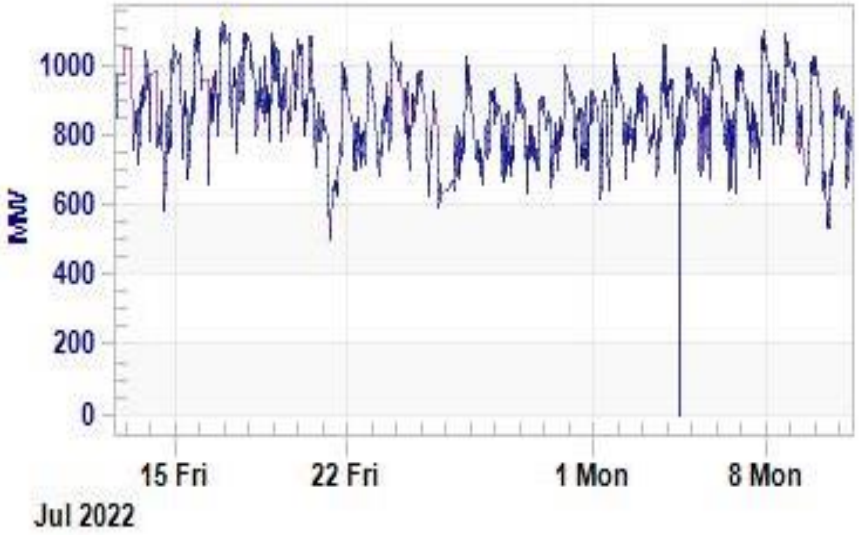
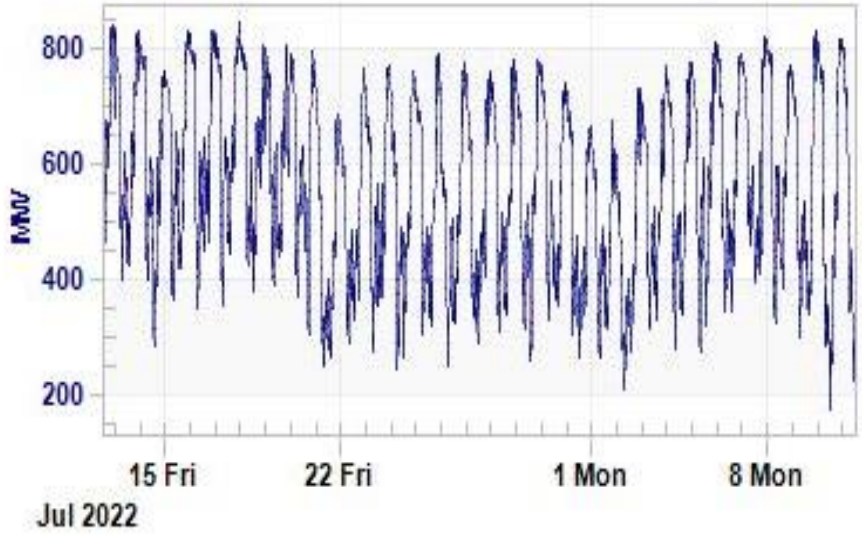
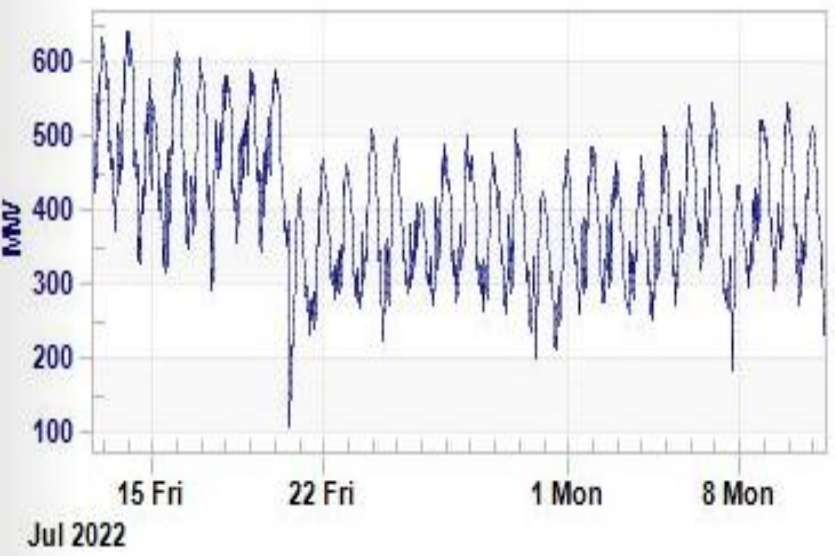


Gorakhpur UP ICT loading



Lucknow(PG) ICT loading



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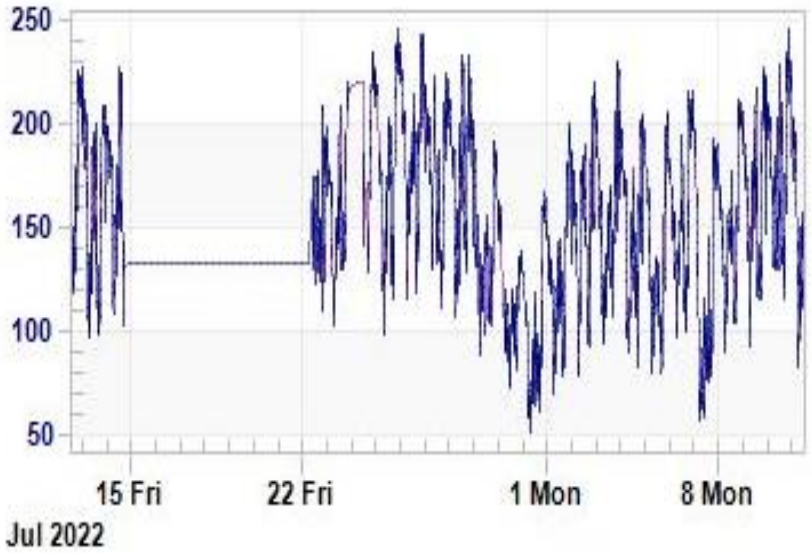

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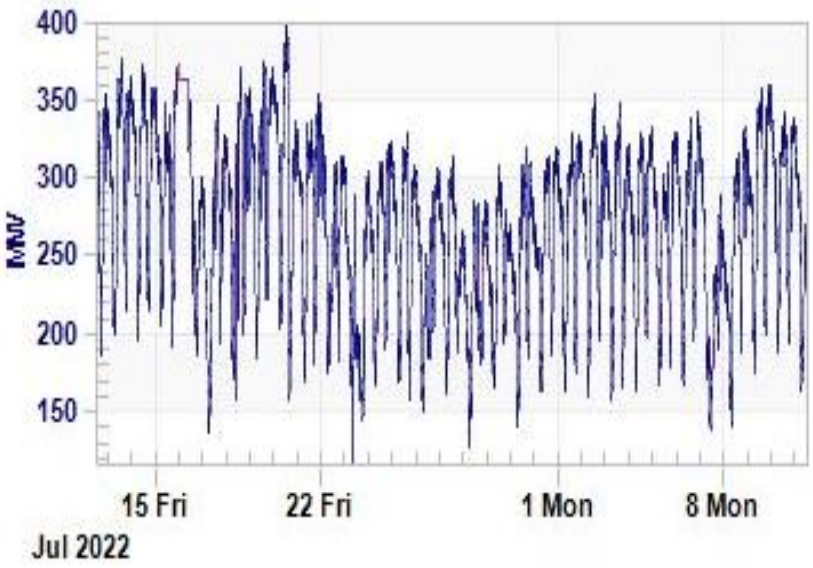
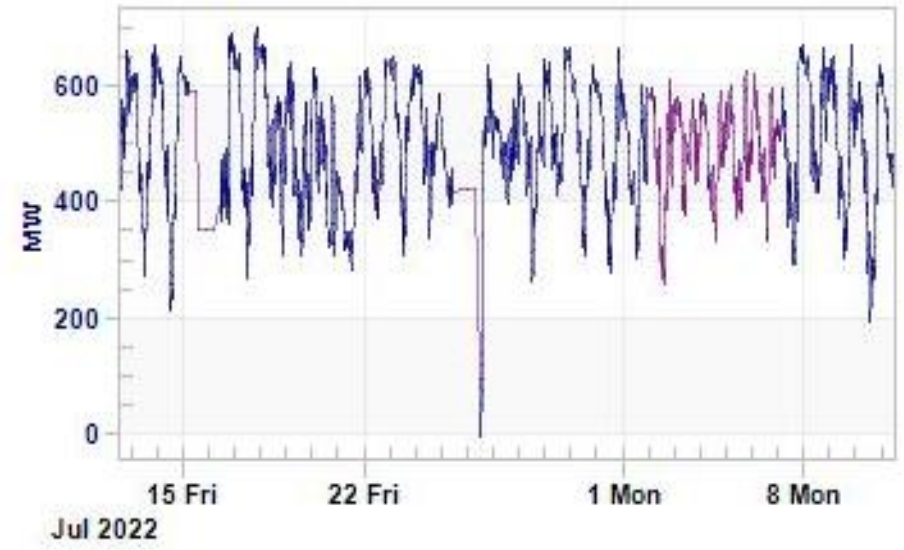


Obra ICT loading



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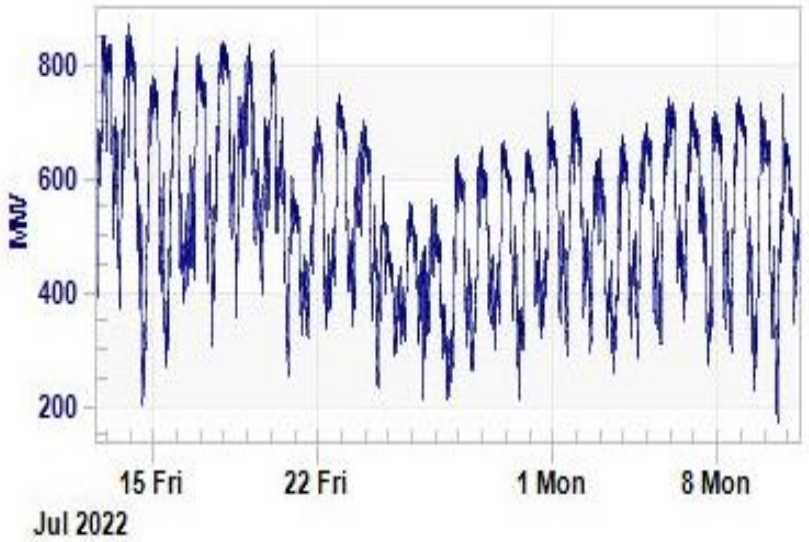
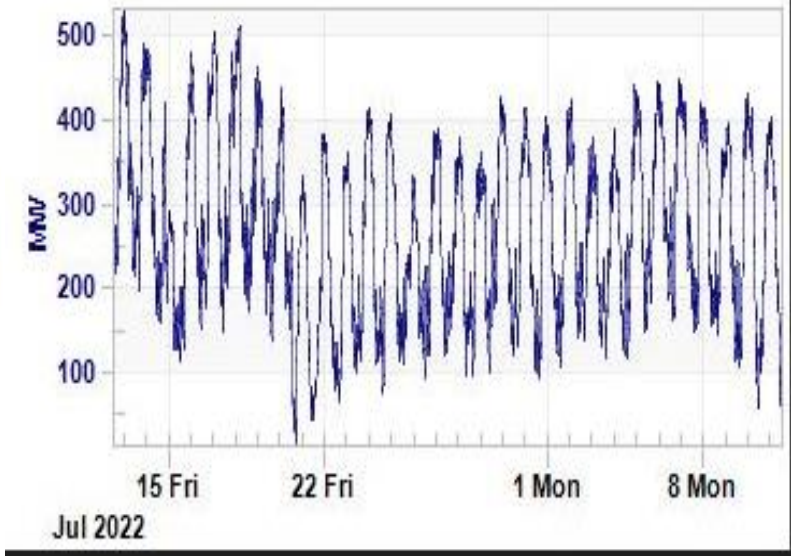


Sohawal ICT loading



A. Details of Long Duration Transmission elements Outage :-

S.No	Element Name	Type	Owner	Outage			Reason / Remarks	Status updated during last OCC
1	400/220 kV 315 MVA ICT 2 at Mundka(DV)	ICT	DTL	20-09-2019	00:19	1056	Due to fire in ICT	31.08.2022
2	80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SJ)	BR	SJVNL	17-10-2019	12:58	1028	Flashover/Fault in 80MVAR Bus Reactor cleared by Bus Bar Protection.	31.08.2022
3	50 MVAR LR ON 400 KV AKAL-RAMGARH (RS) CKT-1 @RAMGARH(RS)	LR	RRVPNL	23-04-2018	14:10	1570	Reactor is out as line is yet to be commissioned. Shifted to Bhadla line. CHARGED WITH BHADLA-JAISALMER-I LINE	31.12.2022
4	50 MVAR LR on Akal-Jodhpur (RS) Ckt-1 @Akal(RS)	LR	RRVPNL	17-08-2021	23:47		Akal: DT Receive Jodhpur: DT Send, 400 kV Reactor Manually Trip at 400 kV GSS, Jodhpur due to low voltage(before tripping reactor was charged as a bus reactor)	30.11.2022
5	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	ICT	UPPTCL	13-03-2020	02:46	881	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover.	TWC approved on 09.12.2021 for replacement with 500MVA new ICT . 30 Dec 2022
6	400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP)	ICT	UPPTCL	19-08-2020	08:12	722	ICT tripped on REF protection. Transformer caught fire and got damaged.	30 Aug 2022
7	50 MVAR Non-Switchable LR on Agra-Unnao (UP) Ckt-1 @Agra(UP)	LR	UPPTCL	28-10-2021	22:27	286	R and Y phase bushing damaged at Agra(UP). Concerned written to OEM for inspection of reactor. Order placed for testing by manufacturer	Testing done by OEM, Report awaited.
8	220 KV AGRA(PG)-FEROZABAD(UP) (UP) CKT-1	Line	UPPTCL	27-11-2021	09:55	157	Jumpering work for making Lilo point of 220 kv Firozabad(400)-Agra(765) PG line at 220 kv Tundla	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.
9	400KV Bus 1 at Vishnuprayag(JP)	BUS	JPVL	02-12-2021	14:42	188	Bus bar protection operated at Vishnuprayag. Sparking in Bus Coupler CB.	30 Sep 2022
10	50 MVAR Bus Reactor No 1 at 400KV Moradabad(UP)	BR	UPPTCL	03-12-2021	22:22	250	R-phase bushing damaged.	30 Dec 2022
11	400/220 kV 240 MVA ICT 3 at Moradabad(UP)	ICT	UPPTCL	13-12-2021	22:38	240	Due to high DGA values, Hydrogen gas is above permissible limit.	30 Dec 2022
12	50 MVAR BUS REACTOR NO 1 AT 400KV PANKI(UP)	BR	UPPTCL	29-01-2022	08:56	194	Replacement of 50 MVAR Bus reactor by new 125 MVAR Bus Reactor.	30.08.2022
13	765 KV ANPARA_D-UNNAO (UP) CKT-1	Line	UPPCL	08-02-2022	10:06	184	Shifting of Line Reactor from Anpara-D to Obra-C S/S (OCC 190)	LILO of the line at Obra C under processing. Annexure-B documents awaited.
14	220 KV Kishenpur(PG)-Mir Bazar(PDD) (PDD) Ckt-1	Line	PDD JK	19-02-2022	21:45	172	Tower no. 170 collapsed.	
15	400 KV Parbati_3(NH)-Sainj(HP) (PKTCL) Ckt-1	Line	PKTCL	11-03-2022	03:21	153	Phase to earth fault R-N , Zone-1 from Parbati_3(NH). R-phase XLPE cable has been punctured between GIS and Pothead yard of Parbati-III PS.	
16	400/21 kV 776 MVA GT 7 at Suratgarh SCTPS(RVUN)	ICT	RRVPNL	15-03-2022	01:32	149	Due to failure of R-phase bushing of GT-7A.	15.09.2022
17	125 MVAR Bus Reactor No 1 at 400KV Barmer(RS)	BR	RRVPNL	16-07-2022	18:49	42	Reactor Back-up Impedance protection operated.	31.08.2022
18	401A MAIN BAY - 400/66 KV 250 MVA ICT 1 AT HMEL (PS) (PSTCL) AND 400 KV HMEL (PS) - BUS 1 AT 400 KV HMEL (PS) (PSTCL)	BAY	PSTCL	12-05-2022	14:05	90	Transformer Differential protection operated.	
19	400/66 kV 250 MVA ICT 1 at HMEL (PS)	ICT	PSTCL	12-05-2022	14:05	90	Differential relay operated.	
20	408 TIE BAY - 400KV MOGA-HISSAR (PG) CKT-1 AND 400/220KV 315 MVA ICT 4 AT MOGA(PG)	BAY	POWERGRID	17-05-2022	10:32	86	For retrofitting (overhauling) work	
21	201 MAIN BAY - 220KV BUS 1 AT PATRAN(PATR) (STERLITE) AND FUTURE AT 220 KV PATRAN(PATR) (STERLITE)	BAY	Sterlite	10-06-2022	20:01	61	201 main Bay Y-ph hydraulic pump Is running continuously and the Spring is not getting charged, which may lead to CB Lockout.	
22	203 MAIN BAY - 220 KV BIKANER(PG) - BUS 2 (POWERGRID) AND FUTURE AT 220 KV BIKANER(PG) (POWERGRID)	BAY	POWERGRID	09-07-2022	15:44	32	due to heavy sparking observed in the contact of isolator (203-89C).	
23	40452T TIE BAY - 400 KV BHADLA-JODHPUR (RS) CKT-1 AND 400/220 KV 500 MVA ICT 1 AT BHADLA(RS) AT 400 KV BHADLA(RS)	BAY	RRVPNL	25-07-2022	14:47	16	Tie CB tripped due to Pole Discrepancy.	
24	FSC of 400 KV Koteshwar-Meerut (PG) Ckt-1 at Meerut(PG)	FSC	POWERGRID	20.02.2020	10:02		FSC out for upgradation work at 765kV. Upgraded to 765kV. Expected revival status awaited from PG-NR1.Waiting for CEA clearance.	
25	FSC of 400 KV Koteshwar-Meerut (PG) Ckt-2 at Meerut(PG)	FSC	POWERGRID	15.05.2020	17:45		FSC out for upgradation work at 765kV. Upgraded to 765kV. Expected revival status awaited from PG-NR1.Waiting for CEA clearance.	
26	FSC of 400 KV Fatehpur-Mainpuri (PG) Ckt-1 at Mainpuri(PG)	FSC	POWERGRID	24.10.2021	21:07	290	BHEL breaker hydraulic pressure could not be developed in B phase and (loss of N2 pressure) doesn't allow the FSC-1 taken into service as reported by CPCC3.	
27	FSC of 400 KV Fatehpur-Mainpuri (PG) Ckt-2 at Mainpuri(PG)	FSC	POWERGRID	29.01.2022	08:25	194	VME protection system was blocking the FSC back in service as reported by CPCC3.	
28	FSC(40%) of 400 KV Kanpur-Ballabhgarh (PG) Ckt-3 at Ballabhgarh(PG)	FSC	POWERGRID	10.06.2022	23:07	61	FSC-3 at Ballabgarh SS bypassed on MOV over temperature	
29	50 MVAR Non-Switchable LR on Akal-Jodhpur (RS) Ckt-1 @Jodhpur(RS)	LR	RRVPNL	07-07-2022	21:10	34	To take-out Line Reactor out of service due to high DGA violation; for internal inspection by OEM.	18.08.2022

B. Details of Long Duration Generating Units Outage :-

S.No	Element Name	Type	Owner	Outage			Reason / Remarks	Status updated during last OCC
1	250 MW Chhabra TPS - UNIT 4		RRVPNL	09-09-2021	00:47	336	Due to Electrostatic precipitators (ESP) structure damage	
2	100 MW Koteshwar HPS - UNIT 1		THDC	04-11-2021	22:58	279	Due to fault in GT	
3	108 MW Bhakra HPS - UNIT 1		BBMB	15-12-2021	12:05	279	Renovation Modernization and upgradation of capacity to 126MW	02-10-2022
4	34 MW Delhi Gas Turbines - UNIT 9		DTL	12-02-2022	20:00	179	STG Governor oil leakage	
5	30 MW Delhi Gas Turbines - UNIT 5		DTL	12-02-2022	21:04	179	Due to tripping of associated STG at 20:00 hrs	
6	660 MW Suratgarh SCTPS - UNIT 7		RRVPNL	15-03-2022	01:32	149	FAILURE OF R PHASE BUSHING OF GT-7A.	15.09.2022
7	210 MW Guru Hargobind Singh TPS (Lehra Mohabbat) - UNIT 2		PSPCL	13-05-2022	21:36	89	ESP breakdown. Rectification works under progress as confirmed by SLDC-PS.	15.09.2022
8	253 MW Bawana GPS - UNIT 5		DTL/Pragati CCGT	03-06-2022	22:04	68	C&I problem	
9	Ramgarh GPS - UNIT 2		RRVPNL	04-06-2022	01:17	68	Due to fire accident in GT - 2	
10	220 MW RAPS-B - UNIT 2		NPCIL	06-06-2022	00:10	66	For biennial preventive maintenance & surveillance to fulfil mandatory regulatory requirements of AERB (GOI).	
11	250 MW Suratgarh TPS - UNIT 1		RRVPNL	30-06-2022	18:24	41	Stator earth fault	

Sr No	Element Name	Outage Date	Outage Time	Reason
1	400 KV Muradnagar_2-Mathura (UP) Ckt-1	21-Jul-22	15:53	Phase to earth fault Y-N. As per PMU, Y-N fault occured, no auto-reclosing observed.
		26-Jul-22	01:10	Phase to earth fault Y-N. As per PMU, Y-N fault and unsuccessful auto-reclosing observed.
		30-Jul-22	05:39	As per PMU, Y-N fault occurred and delayed clearance of 500ms with no auto-reclosing observed.
2	400 KV Avaada Pooling SL_BKN_PG (AEPL)-Bikaner(PG) (AEPL) Ckt-1	09-Jul-22	13:42	SOTF Protection Operated.As per PMU, R-Y fault occurred.
		16-Jul-22	12:11	Tripped on DT received at Bikaner PG from Avaada end.As per PMU, No fault observed.
		20-Jul-22	21:26	For Line Distance Protection Main- 1 & 2 Relay Testing at Avaada.As per PMU, No fault observed.
3	220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1	08-Jul-22	12:34	Tripped due to snapping of B-phase jumper at tower no. 30.As per PMU, No fault observed.
		14-Jul-22	22:35	Jumper breakdown in TATA power 220 KV transmission line .As per PMU, No fault observed.
		24-Jul-22	20:45	Due to voltage fluctuation, DT received at Bhadla.As per PMU, No High voltage observed.
		30-Jul-22	21:12	Tripped Due To Internal Over Voltage Fluctuation.As per PMU, No High voltage observed.
4	220 KV Nanauta(UP)-Saharanpur(PG) (UP) Ckt-1	11-Jul-22	18:23	B-N fault, Zone-2, Fault current 3.783kA, Dist. 25.09km from Nanauta(UP).B-N fault, Zone-2, Fault current 3.783kA, Dist. 25.09km from Nanauta(UP).
		12-Jul-22	14:37	R-N fault, Fault current 1.076kA, Dist. 28.8km from Nanauta end. R-phase polymer damaged at Tower no. 889.As per PMU, R-N fault and unsuccessful auto-reclosing observed.
		21-Jul-22	08:44	B-N fault, Dist. 28.59km, Fault current 4.130kA from Nanauta(UP).As per PMU, Y-N fault occured, no auto-reclosing observed.
		26-Jul-22	16:17	R-N fault, Fault current 1.65kA from Nanauta(UP).As per PMU, R-N fault occurred and delayed clearance of 400ms with no auto-reclosing observed.(Zone of fault is not reported)
		28-Jul-22	18:26	R-N fault, Zone-1, Dist. 16.90km, Fault current 7.155kA from Nanauta end.As per PMU, R-N fault occured, no auto-reclosing observed.
5	220 KV Panipat-Kurukshetra (BB) Ckt-1	01-Jul-22	15:56	Phase to earth fault R-N.As per PMU, B-N fault and unsuccessful auto-reclosing observed.(BBMB)
		05-Jul-22	21:38	Phase to earth fault R-N.As per PMU, B-N fault and unsuccessful auto-reclosing observed.(BBMB)
		17-Jul-22	16:08	Phase to earth fault B-N.As per PMU, Y-N fault occured, no auto-reclosing observed.(BBMB)
		29-Jul-22	10:55	Phase to earth fault B-N.As per PMU, Y-N fault occured, no auto-reclosing observed.(BBMB)
6	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1	17-Jul-22	13:18	B-N fault, Dist. 1.4km, Fault current 6.99kA from Sakatpura(RS).As per PMU, B-N fault occured, no auto-reclosing observed.
		20-Jul-22	21:18	B-N fault, Dist. 9.3km, Fault current 11.56kA from Sakatpura & Zone-1, Dist. 31.8km, Fault current 3.75kA from RAPS_A.AS per PMU B-N fault occured, no auto-reclosing observed.*(With unusual values)
		30-Jul-22	03:50	KOTA END Z1 CPHASE,25.5 KM 5.47 KA RAPPA END Z1 BPHASE14.2 KM,5.968KA..AS per PMU B-N fault occured, no auto-reclosing observed.*(With unusual values)
7	220 KV Sohawal(PG)-Ayodhya (UP) (UP) Ckt-1	14-Jul-22	20:29	R-N fault, Zone-1, Dist. 48.2km from Sohawal(PG).AS per PMU R-N fault occured, no auto-reclosing observed
		20-Jul-22	14:22	Phase to earth fault B-N.AS per PMU R-N fault occured, no auto-reclosing observed
		21-Jul-22	14:22	Tripped only at Sohawal end and due to continuous DT received from Ayodhya end .As per PMU, No fault observed.
		22-Jul-22	14:01	R- pH, E/F, Distance- 40.400Km., Z-1, R pH. Current- 3.8ka, DTR Oprated Ayodhya end - Distance- 11.500Km, R,y,B. Tripped, Z-1, Ia-2.75kA, Ib-0.2kA, Ic-00kA..AS per PMU R-N fault occured, no auto-reclosing observed.
8	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	07-Jul-22	17:55	Earth fault/Overcurrent protection operated.
		14-Jul-22	18:18	O/C E/F relay operated
		15-Jul-22	14:32	ICT 01 trip on EF/OC
		17-Jul-22	06:15	Over voltage
		17-Jul-22	10:50	Over voltage
		18-Jul-22	03:35	Over voltage
		19-Jul-22	21:11	Fire detector trip alarm at NIFPS control cubical of ICT-1.

Grid Event summary for July 2022

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Outage Duration (hh:mm)	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]
					Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
1	GI-2	1) 400/220 kV 315 MVA ICT 2 at Unnao(UP) 2) 400/220 kV 315 MVA ICT 3 at Unnao(UP) 3) 400/220 kV 315 MVA ICT 1 at Unnao(UP)	UTTAR PRADESH	UPPTCL	2-Jul-22	17:03	2-Jul-22	18:16	01:13	1. 400/220kV Unnao(UP) substation have double main transfer bus scheme at both 400kV & 220kV level. 2. In antecedent condition, 400/220kV 315MVA ICT-2 at Unnao, 220/132kV 160MVA ICT-4 and 220kV lines to Phool Bagh-1, Kanpur Road were connected to 220kV Bus-1 and rest of the elements were connected to 220kV Bus-2. 3. At 17:03 hrs, insulation of Y-ph CT of 220kV Unnao-Phool Bagh ckt-1 at Unnao end failed and created Y-N phase to earth bus fault on Bus-1. As per PMU, Y-N phase to earth fault which cleared within 120ms is observed. 4. On this bus fault, bus bar protection of 220kV bus-1 at Unnao operated, which led to tripping of 400/220kV 315MVA ICT-2, 220/132kV 160MVA ICT-4 and 220kV lines to Phool Bagh-1, Kanpur Road. 5. At the same time, 400/220kV 315MVA ICT-1 & ICT-3 at Unnao also tripped on directional earth fault protection. 6. As per SCADA, no load loss is observed.	0	0	0	0	0.000	0.000	48347	57885	120
2	GD-1	1) 220 KV Salal(NH)-Jammu(PDD) (PG) Ckt-2 2) 220 KV Salal(NH)-Jammu(PDD) (PG) Ckt-1	J & K	POWERGRID, JK PDD	7-Jul-22	20:46	7-Jul-22	22:30	01:44	1. At 20:46 hrs, flashover in Y-ph jumper between isolator and breaker of transformer bay at 132kV occurred. As per PMU, Y-N phase to earth followed by R-N fault with delayed clearance in 1040ms is observed. 2. On this fault, 220kV Salal-Jammu ckt-2 tripped from Salal end in 2-3 and 220kV Salal-Jammu ckt-1 tripped from jammu end only. 3. Due to tripping of both line, load loss of approx. 300MW is observed J&K control area.	0	0.52	0	300	0.000	0.423	51473	71000	1040
3	GD-1	1) 250 MW Suratgarh TPS - UNIT 6 2) 250 MW Suratgarh TPS - UNIT 3 3) 250 MW Suratgarh TPS - UNIT 5 4) 400/220 kV 315 MVA ICT 1 at Suratgarh(RVUN)	RAJASTHAN	RRVPNL	8-Jul-22	00:58	8-Jul-22	04:00	03:02	1. During antecedent condition, 250MW STPS Unit-2,3,5 &6 were running. 2. At 00:58hrs, bus bar protection of 220kV Bus-1 B operated which resulted into failure of auxillary supply of 250MW Unit-3,5 &6 due to tripping of station transformer connected on this Bus-1 B. 3. On investigation it was found that, one cable of LBB relay of ST-6 was found earthed and also shorted to some voltage source which led to LBB tripping intiation and resulted into tripping of ST-5, ST-3 & ST-6 . Due to tripping of these STs, auxillary supply to Units failed.	0	0	650	0	1.316	0.000	49376	71628	NA
4	GD-1	1) 220 kV Samaypur(BB)-Palli(HV) (HVPNL) Ckt-1 2) 220 kV Samaypur(BB)-Palli(HV) (HVPNL) Ckt-2 3) Palli-Faridabad ckt-1 4) Palli-Faridabad ckt-2 5) Palli- Badshahpur ckt 6) Palli- Gurgaon sec 65 ckt 7) Palli-Gurgaon Sec 56 ckt-1 7) Palli-Gurgaon Sec 56 ckt-2	HARYANA	BBMB, HVPNL	8-Jul-22	02:11	8-Jul-22	05:35	03:24	1. As reported, at 08:10hrs, R&Y phase CT orf 220kV Palli-Gurgaon Sec 65 ckt damaged and caught fire at Palli end. 2. On this fault, bus bar protection Z-1 & Z-2 operated at 220kV Palli. 3. Due to bus bar protection at 220kV Palli, all 220kv feeders connected at palli tripped. 4. As per PMU, R-Y phase to phase fault with delayed clearance in 480ms is observed. 5. As per SCADA, change in load of approx. 400MW is observed in Haryana control area.	0	0.9	0	400	0.000	0.578	48130	69255	480
5	GI-2	1) 765/400 kV 1500 MVA ICT 1 at Fatehgarh_II(PG) 2) 765/400 kV 1500 MVA ICT 3 at Fatehgarh_II(PG) 3) 765/400 kV 1500 MVA ICT 2 at Fatehgarh_II(PG)	RAJASTHAN	POWERGRID	9-Jul-22	04:27	9-Jul-22	07:30	03:03	1. In antecedent condition, as there was no RE generation, ICTs were ideally charged. 2. At 04:27hrs, 765/400 kV 1500 MVA ICT-1, ICT-2 & ICT-3 at Fatehgarh_II(PG) all tripped on over flux protection operation. 3. As per PMU at Fatehgarh2(PG), in antecedent condition, voltage at Fatehgarh2 was ~1.04pu (793kV) and frequency was 50.05Hz. Hence, flux was approx. 1.04pu which is in operating range.	0	0	0	0	0.000	0.000	48025	69282	NA
6	GD-1	1) 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 2) 400 KV Avaada Pooling SL_BKN_PG (AEPL)-Bikaner(PG) (AEPL) Ckt-1 3) 400 KV Bikaner(PG)-Bikaner(RS) (PG) Ckt-1	RAJASTHAN	POWERGRID, AEPL	9-Jul-22	13:42	9-Jul-22	14:34	00:52	1. At 13:42hrs, 400 KV Bikaner(PG)-Bikaner(RS) (PG) Ckt-1 tripped on R-Y phase to phase fault. As per DR received from Bikaner(PG) end, fault current was 12kA. As per PMU at Fatehgarh2(PG), R-Y phase to phase fault which cleared within 80ms is observed. 2. At the same time, 400 KV Avaada Pooling SL_BKN_PG (AEPL)-Bikaner(PG) (AEPL) Ckt-1 (carrying 727MW) also tripped on maloperation of SOTF protection. With the tripping of line, solar generation of approx. 727MW at Avaada also tripped due to loss of evacuation path. 3. During same time, drop in solar generation is observed at many other RE stations connected at different RE pooling stations. Drop in total solar generation was approx. 3485MW (including Avaada solar generation) and pooling stations wise RE generation loss is: Bhadla(PG): 216MW, Bhadla2(PG): 297MW, Fatehgarh2(PG):1115MW, Adani Solar park: 646MW & Bikaner(PG): 1213MW. 4. Within around. 3min, apprx. 2300MW solar generation recovered. 5. Further after 5secs of fault, over voltage occurred due to significant generation drop and 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 tripped on over voltage protection operation at Bhadla2 end.	1.2	0	3485	0	6.342	0.000	54952	65080	80
7	GD-1	1) 220 KV Pantnagar(UK)-Bareilly(UP) (UP) Ckt-1 2) 132 KV Pithoragarh(PG)-Almora(PTCUL) (PTCUL) Ckt-1 3) 400/220 kV 315 MVA ICT 1 at Kashipur(UK) 4)400/220 kV 315 MVA ICT 2 at Kashipur(UK)	UTTRAKHAND	PTCUL, UPPTCL	12-Jul-22	19:57	12-Jul-22	20:33	00:36	1. 400/220/132kV Kashipur have 2*315 400/220kV and 2* 160MVA 220/132kV ICTs. In antecedent condition, 400/220kV 315MVA ICT-1&2 were carrying 240MW each. 2. At 19:56:35 hrs, 220 KV Pantnagar(UK)-Bareilly(UP) (UP) Ckt-1 tripped on R-N phase to earth fault. As reported, fault distance was 2.15km & 63.15km from Pantnagar & Bareilly end respectively and fault current was 6kA & 2.65kA from Pantnagar & Bareilly end respectively. As per PMU, R-N phase to earth fault with delayed clearance in 400ms is observed. 3. With the tripping of 220 KV Pantnagar(UK)-Bareilly(UP) (UP) Ckt-1, loading of 400/220kV 315MVA ICT-1&2 at Kashipur(UK) rose to 283MW each and further after 1min, both the ICTs tripped on Over current protection operation. 4. At the same time, 132 KV Pithoragarh(PG)-Almora(PTCUL) (PTCUL) Ckt-1 also tripped on over current protection operation. As per SCADA, its loading loading also increased from 65MW to 92MW. 5. Due to tripping of aforementioned elements, load loss of approx. 680MW is observed in Uttarakhand control area. 6. As per SCADA SOE, Bus coupler breaker at Dhauliganga HEP also opened during the event.	0	0.41	0	680	0.000	0.986	53334	68943	400
8	GD-1	1) 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-1 2) 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 3) 220 KV Kishenpur(PG)-Sarna(PS) (PG) Ckt-1 4) 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2 5) 220 KV Kishenpur(PG)-Ramban(PDD) (PDD) Ckt-1 6) 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-4 7) 220 KV Kishenpur(PG)-Udhampur(PDD) (PG) Ckt-2 8) 400/220 kV 315 MVA ICT 1 at Kishenpur(PG) 9) 400/220 kV 315 MVA ICT 3 at Kishenpur(PG) 10) 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-2 11) 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-3 12) 400/220 kV 315 MVA ICT 2 at Kishenpur(PG) 13) 220KV Bus 2 at Kishenpur(PG) 14) 220 KV Kishenpur(PG)-Sarna(PS) (PG) Ckt-2 15) 220KV Bus 1 at Kishenpur(PG) 16)220 KV Kishenpur(PG)-Udhampur(PDD) (PG) Ckt-1 17) 220 KV Sarna(PS)-Udhampur(PDD) (PDD) Ckt-1	J & K	PDD JK, POWERGRID	13-Jul-22	02:45	13-Jul-22	04:47	02:02	1. 400/220kV Kishenpur(PG) have double main transfer bus scheme at 220kV level. 2. During antecedent condition, 400/220kV 315MVA ICT-1 & ICT-3 & 220kV lines to Salal-1&3, Ramban, Sarna-1, Barn-1, Udhampur-1 were connected to 220kV Bus-1 and 400/220kV 315MVA ICT-2 & 220kV lines to Salal-2&4, Sama-2, Udhampur -2, Barn-2 were connected to 220kV Bus-2. Salal generation was approx. 710MW and each 220kV line from Salal to Kishenpur was carrying ~115MW. 3. As reported, at 02:43hrs, Y-ph jumper of 220kV Kishenpur-Sarna ckt-2 snapped at Kishenpur switchyard and touched B-ph of the line followed by 220kV bus-1 at Kishenpur. Thus, created Y-ph bus fault. As per PMU at Kishenpur, Y-B phase to phase fault which cleared within 80ms is observed. 4. On this bus fault, bus bar protection of 220kV Bus-1 at Kishenpur operated and all the elements connected to 220kV bus-1 tripped. 5. At the same time, 400/220KV 315MVA ICT-2 at Kishenpur(PG) also tripped on over current protection operation followed by tripping of all six units (115MW each) of Salal(NHPC) due to loss of evacuation path. Due to aforementioned tripping, 220kV bus-2 also became dead. 6. As per SCADA, change in generation of approx. 715MW at Salal HEP and change in load of approx. 315MW is observed in J&K control area observed.	0	0.65	710	315	1.455	0.470	48801	66990	80
9	GD-1	1) 220/132 kV 100 MVA ICT 1 at Raebareilly(PG) 2) 220/132 kV 200 MVA ICT 2 at Raebareilly(PG) 3) 220/132 kV 200 MVA ICT 3 at Raebareilly(PG)	UTTAR PRADESH	POWERGRID	14-Jul-22	19:11	14-Jul-22	20:39	01:28	1. 220/132kV Raebareilly(PG) have double main transfer bus scheme. 2. As reported, at 19:11hrs, CB of 132kV Raebareilly-Gaurigan ckt blasted at Raebareilly end and created bus fault on 132kV bus at Raebareilly (owned by UP). 3. Fault was not cleared by bus bar protection of 132kV Raebareilly and later fault cleared with the tripping of 220/132 kV 100 MVA ICT 1 & 220/132 kV 200 MVA ICT 2 & ICT 3 at Raebareilly(PG) from HV side on over current protection operation. 4. As per PMU, R-Y-B three phase fault with delayed clearance in 1320ms is observed. 5. Due to tripping of 220/132kV ICTs load connected at 132kV level affected. As per SCADA, load loss of approx. 110MW occurred in UP control area. 6. In antecedent condition, 220/132 kV 100 MVA ICT 1 & 220/132 kV 200 MVA ICT 2 & ICT 3 at Raebareilly(PG) were carrying 22MW, 43MW & 44MW respectively.	0	0.16	0	110	0.000	0.195	49800	56508	1320
10	GD-1	1) 400 KV Avaada Pooling SL_BKN_PG (AEPL)-Bikaner(PG) (AEPL) Ckt-1 2) 400/33 kV 150 MVA ICT 5 at Avaada Pooling SL_BKN_PG (AEPL) 3) 400/33 kV 150 MVA ICT 1 at Avaada Pooling SL_BKN_PG (AEPL) 4) 400/33 kV 150 MVA ICT 6 at Avaada Pooling SL_BKN_PG (AEPL) 5) 400/33 kV 150 MVA ICT 2 at Avaada Pooling SL_BKN_PG (AEPL) 6) 400/33 kV 150 MVA ICT 7 at Avaada Pooling SL_BKN_PG (AEPL) 7) 400/33 kV 150 MVA ICT 3 at Avaada Pooling SL_BKN_PG (AEPL) 8) 400/33 kV 150 MVA ICT 4 at Avaada Pooling SL_BKN_PG (AEPL)	RAJASTHAN	Avaada_RJHN	16-Jul-22	12:11	16-Jul-22	13:42	01:31	1. 400/33kV Avaada Pooling station is connected at 765/400/220kV Biknaer(PG) with 400kV Avaada Pooling station-Bikaner ckt. 2. At 12:11hrs, 400kV Avaada Pooling station-Bikaner ckt tripped on over voltage stage-2 protection operation at Avaada end. As per PMU at Avaada end, over voltage up to 1.35pu is observed however, as per DR of Avaada end of the line, voltage was approx. ~1.4pu for more than 100ms. 3. With the tripping of 400kV Avaada Pooling station-Bikaner ckt, whole generation of Avaada RE stations approx. 720MW tripped due to loss of evacuation path. PMU plot of active power of Avaada RE station is attached.	1.09	0	720	0	1.276	0.000	56410	65330	NA
11	GD-1	1) 220 KV Wagoora(PG)-Pampore(PDD) (PG) Ckt-1 2) 220 KV Wagoora(PG)-Pampore(PDD) (PG) Ckt-2	J & K	PDD JK POWERGRID	17-Jul-22	14:05	17-Jul-22	14:43	00:38	1. In antecedent condition, 220 KV Wagoora(PG)-Pampore(PDD) (PG) Ckt-1 & Ckt-2 were carrying approx. 111MW each. 2. As reported, at 14:05hrs, 220 KV Wagoora(PG)-Pampore(PDD) (PG) Ckt-1 & Ckt-2 both tripped from Pampore end only on over current protection operation. 3. As per PMU at New Wanpoh(PG), R-N phase to earth fault with delayed clearance in 440ms is observed. 4. Due to tripping of both the line, load loss of approx. 170MW occurred in J&K control area (as per SCADA).	0	0.11	0	170	0.000	0.301	49800	56508	440

S.No.	Category of Grid Disturbance	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Outage Duration (hh:mm)	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)
	(GD-1 to GD-V)				Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
12	GD-1	1) 132 kV Pilibhit(UP)-Sitarganj(PTCUL) (PTCUL) Ckt-1 2) 220/132 kV 100 MVA ICT 3 at Sitarganj(PG) 3) 220/132 kV 100 MVA ICT 2 at Sitarganj(PG) 4) 220/132 kV 100 MVA ICT 1 at Sitarganj(PG) 5) 132 kV Sitarganj(PG)-Sitarganj(PTCUL) (PTCUL) Ckt-2 6) 132 kV Sitarganj(PG)-Sitarganj(PTCUL) (PTCUL) Ckt-3 7) 132 kV Sitarganj(PG)-Sitarganj(SIDCUL) (PTCUL) Ckt-1 8) 220 kV Tanakpur(NH)-Sitarganj(PG) (PG) Ckt-1	UTTRAKHAND	POWERGRID, PTCUL	17-Jul-22	20:27	17-Jul-22	21:47	01:20	1. 220/132kV Sitarganj(PG) substation feeds load of Uttarakhand through 132kV feeders. It is having three 220/132kV 100MVA ICTs. 2. As reported, at 20:27hrs, one snake climbed on R-phase main bus isolator of 132kV Kichha line at Sitarganj. It caused R-ph bus fault at 132kV Sitarganj. As per PMU at CB Ganj(UP), R-N phase to earth fault with delayed clearance in 1080ms is observed. 3. On this bus fault, three 132kV feeders to Sitarganj(PTCUL); three 220/132kV 100MVA ICTs at Sitarganj(PG) tripped and 132kV Sitarganj(PG) became dead. At the same time, 220 KV Tanakpur(NH)-Sitarganj(PG) (PG) Ckt-1 tripped on Z-3 distance protection operation.. 4. As per SCADA, load loss of approx. 55MW occurred in Uttarakhand control area.	0	0.07	0	55	0.000	0.088	50161	62793	1080
13	GI-2	1) 800 KV HVDC Kurukshetra(PG) Pole-03 2) 800 KV HVDC Kurukshetra(PG) Pole-04	HARYANA	POWERGRID	19-Jul-22	08:09	19-Jul-22	09:33	01:24	1. As reported, at 08:09hrs, 800 KV HVDC Kurukshetra(PG) Pole-03 & Pole-4 tripped due to filter power limit. 2. As per PMU at Kurukshetra(PG), no fault is observed and fluctuation in voltage is observed. 3. In antecedent condition, 800 KV HVDC Kurukshetra(PG) Bipole 1 & 2 total carrying approx. 4000MW. Due to tripping of 800 KV HVDC Kurukshetra(PG) Pole-03 & Pole-4, power order reduced to 3000MW from 4000MW.	0	0	0	0	0.000	0.000	62345	62345	NA
14	GI-2	1) 220KV Bus 2 at Moga(PG) 2) 220 KV Moga(PG)-MEHAL- KALAN(PS) (PSTCL) Ckt-1 3) 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-2 4) 220 KV Moga(PG)-BADNI KALAN(PS) (PSTCL) Ckt-1 5) 400/220 kV 250 MVA ICT 2 at Moga(PG) 6) 400/220 kV 500 MVA ICT 3 at Moga(PG) 7) 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-4 8) 220 KV Moga(PG)-Ajitwal(PS) (PSTCL) Ckt-1	PUNJAB	POWERGRID, PSTCL	21-Jul-22	08:30	21-Jul-22	12:49	04:19	1. 220kV Moga(PG) have double main transfer bus scheme. 2. In antecedent condition, 400/220kV 250MVA ICT-2, 400/220kV 500MVA ICT-3 and 220kV feeders to Mogan-2 & 4, Ajitwal, Badni Kalan, Mehal Kalan-1 were connected to 220kV Bus-2 and 400/220kV 500MVA ICT-1, 400/220KV 315MVA ICT-4 and 220kV feeders to Mogan-1 & 3, Mehal Kalan-2 were connected to 220kV Bus-1. 3. As reported, at 08:30hrs, R-ph jumper connecting CT & wave trap of 220 KV Moga(PG)-MEHAL- KALAN(PS) (PSTCL) Ckt-1 broken which created R-ph bus fault on 220kV Bus-2. 4. On this fault, bus bar protection of 220kV Bus-2 at Moga operated which led to tripping of all the elements connected to 220kV bus-2. All the elements connected to 220kV Bus-1 remained intact. As per PMU at Jalandhar(PG), R phase to earth fault which cleared within 80ms is observed. 5. As per SCADA, no load loss in Punjab control area observed.	0	0	0	0	0.000	0.000	45924	46400	80
15	GI-2	1) 765 KV Agra-Fatehpur (PG) Ckt-1 2) 400 KV Singrauli(NT)-Fatehpur(PG) (PG) Ckt-1	UTTAR PRADESH	POWERGRID	22-Jul-22	15:15	22-Jul-22	16:27	01:12	1. As reported, at 15:15hrs, 765 KV Agra-Fatehpur (PG) Ckt-1 & 400 KV Singrauli(NT)-Fatehpur(PG) (PG) Ckt-1 both tripped due to DC source unbalance at Fatehgarh(PG). 765 KV Agra-Fatehpur (PG) Ckt-1 tripped from Agra end only. 2. As per PMU, no fault is observed. 3. In antecedent condition, 765 KV Agra-Fatehpur (PG) Ckt-1 & 400 KV Singrauli(NT)-Fatehpur(PG) (PG) Ckt-1 were carrying 136MW & 225MW respectively.	0	0	0	0	0.000	0.000	48817	56668	NA
16	GD-1	1) 220 KV Samba(PG)-Jammu(PDD) (PG) Ckt-1 2) 220 KV Salal(NH)-Jammu(PDD) (PG) Ckt-1 3) 220KV Salal(NH)-Jammu(PDD) (PG) Ckt-2	J & K	POWERGRID, PDD JK	24-Jul-22	10:30	24-Jul-22	11:20	00:50	1. As reported, at 10:30hrs, PT of 132kV Bus at Gladni switchyard burst. 2. This fault didn't clear from 132kV Gladni(Jammu) end and hence 220 KV Samba(PG)-Jammu(PDD) (PG) Ckt-1 tripped from Sambha end in 2-3.. 3. As per PMU at Kishenpur(PG), R-N & B-N fault is observed in system which cleared with delay of approx. 1480ms. 4. At the same time, 220 KV Salal(NH)-Jammu(PDD) (PG) Ckt-1 & Ckt-2 both tripped from Gladni(Jammu) end only. 5. Due to tripping of aforementioned three lines to Gladni(Jammu), load loss occurred at Gladni(Jammu). As per SCADA, load loss of approx. 315MW is observed in J&K(UT) control area which recovered after approx. 50min.	0.26	0	0	315	0.000	0.566	50230	55643	1480
17	GD-1	1) 400 KV RAPS_D(NP)-Kota(PG) (PG) Ckt-2 2) 220 MW RAPS-C - UNIT 2 3) 220 MW RAPS-C - UNIT 1 4) 400 KV RAPS_D(NP)-Jaipur South(PG) (PG) Ckt-1	RAJASTHAN	NPCIL, POWERGRID	25-Jul-22	11:41	25-Jul-22	13:12	01:31	1. 400/220kV RAPP C&D(NP) substation have one and half breaker scheme at 400kV side. During antecedent condition, Main CB of 220 MW RAPS-C - UNIT 1 & UNIT 2 and Tie CB of 400 KV RAPS_D(NP)-Kota(PG) (PG) Ckt-2 & 400 KV RAPS_D(NP)-Jaipur South(PG) (PG) Ckt-1 were in open condition. 2. As reported, at 11:41hrs, Y-B phase to phase fault occurred on 400 KV RAPS_D(NP)-Kota(PG) (PG) Ckt-2 & 400 KV RAPS_D(NP)-Jaipur South(PG) (PG) Ckt-1 at distance of approx. 10.37km from RAPP C&D end. Fault occurred on both lines as both lines are on same tower. As per PMU, Y-B phase to phase fault which cleared within 80ms is observed. 3. At the same time, 220 MW RAPS-C - UNIT 1 & UNIT 2 also tripped. 4. As per SCADA, loss of generation of approx. 420MW occurred at RAPP C (NP). 5. In antecedent condition, 400 KV RAPS_D(NP)-Kota(PG) (PG) Ckt-2 & 400 KV RAPS_D(NP)-Jaipur South(PG) (PG) Ckt-1 were carrying 85MW & 107MW respectively.	0	0	420	0	0.781	0.000	53778	59370	80
18	GI-2	1) 765/400 kV 1000 MVA ICT 1 at Anpara_C(LAN) 2) 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1	UTTAR PRADESH	UPPTCL	25-Jul-22	12:31	25-Jul-22	14:31	02:00	1. 765/400kV Anpara_C(UP) have one and half breaker bus scheme. 2. As reported, at 12:31hrs, B-N phase to earth fault occurred on 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1 at distance 24.18km (Z-1) from Anpara_C end, fault current was 10.5SkA from Anpara_C end. 3. On this fault, Main CB at Anpara_C opened but Tie CB didn't open. As Tie CB didn't open, LBB of Tie CB operated which initiated tripping command to Main CB of 765/400 kV 1000 MVA ICT 1 at Anpara_C(LAN) which was connected at same dia. Hence, 765/400 kV 1000 MVA ICT 1 at Anpara_C(LAN) also tripped. 4. In antecedent condition, 765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1 & 765/400 kV 1000 MVA ICT 1 at Anpara_C(LAN) were carrying 1091MW & 252MW respectively.	0	0	0	0	0.000	0.000	53126	59167	400
19	GD-1	1) 220 KV Ziankote(JK)-Alusteng(PG) (PG) Ckt-1 2) 220 KV Amargarh(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-2 3) 220 KV Amargarh(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 4) 220 KV Ziankote(JK)-Alusteng(PG) (PG) Ckt-2	J & K	PDD JK, POWERGRID	29-Jul-22	11:19	29-Jul-22	12:17	00:58	1. In antecedent condition, 220 KV Amargarh(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 & 2 were carrying ~128MW each. 2. As reported, at 11:18hrs, Y-N phase to earth fault occurred on 220 KV Ziankote(JK)-Alusteng(PG) (PG) Ckt-2 at distance approx. 0.9km (Z-1) from Ziankote end. 3. As per the information received, bus bar protection operated at 220kV Ziankote end on same fault and 220 KV Ziankote(JK)-Alusteng(PG) (PG) Ckt-1 & 2 and 220 KV Amargarh(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 & 2 tripped. 4. As per PMU, Y-N phase to earth fault which cleared within 80ms is observed. 5. As per DR of Main-2 relay of 220 KV Amargarh(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 & 2 of Amargarh end, fault distance was 23.1km (100%, Z-2) from Amargarh end and Z-2 operated instantaneously. 6. As per SCADA, load loss of approx. 340MW is observed in J&K control area.	0	0.33	0	340	0.000	0.597	54502	56960	80
20	GD-1	1) 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-2 2) 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-3 3) 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-4 4) 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-1 5) 220kV Mogan-Baghapurana(PS) ckt-1 6) 220kV Mogan-Baghapurana(PS) ckt-2 7) 220kV Mogan-Bajakhanna(PS) ckt 8) 220kV Mogan-Ferozpur(PS) ckt 9) 132kV Mogan-Dhale (PS) ckt	PUNJAB	PSTCL	30-Jul-22	11:50	30-Jul-22	14:20	02:30	1. As reported, at 11:50hrs, R-phase conductor of 220kV Mogan-Bajakhanna(PS) ckt snapped at Mogan end. On this fault, bus bar protection operated at Mogan(PSTCL) end. 2. Due to bus bar protection operation, all 220kV lines connected at Mogan(PSTCL) tripped. Line tripped due to bus bar protection operation are 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-1,2 & 4, 220kV Mogan-Baghapurana(PS) ckt-1 & 2, 220kV Mogan-Ferozpur(PS) ckt, 220kV Mogan-Bajakhanna(PS) ckt and 132kV Mogan-Dhale (PS) ckt. 3. As per PMU, R-N phase to earth fault with the delayed clearance of 720ms is observed. 4. As per SCADA, change in load of approx. 130MW is observed in Punjab control area. 5. 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-1,2,3 & 4 were restored at 14:20hrs.	0	0.33	0	130	0.000	0.240	52573	54092	720
21	GD-1	1) 220 KV Bhiwani(HV)-Bhiwani(BB) (HVPNL) Ckt-1 2) 220 KV Bhiwani(HV)-Bhiwani(BB) (HVPNL) Ckt-2 3) 220 KV Bhiwani-Hissar (BB) Ckt-2 4) 220 KV Bhiwani-Charkhi Dadri (BB) Ckt-2 5) 220 KV Bhiwani-Charkhi Dadri (BB) Ckt-4 6) 220 KV Bhiwani-Charkhi Dadri (BB) Ckt-3 7)220 KV Bhiwani-Hissar (BB) Ckt-1 8) 220 KV Bhiwani-Charkhi Dadri (BB) Ckt-1 9) 400/220 kV 500 MVA ICT 1 at Bhiwani(BB)	HARYANA	BBMB, HVPNL	31-Jul-22	04:42	31-Jul-22	07:11	02:29	1. As reported, at 04:41hrs, R-N phase to earth fault occurred on 220 KV Bhiwani-Hissar (BB) Ckt-2 at Bhiwani(BB) end. 2. As per telephonic communication with Bhiwani(BBMB), bus bar protection operated at Bhiwani end on this fault. 2. Due to bus bar protection operation, all the 220kV feeders connected to 220kV side and 400/220kV 500MVA ICT at Bhiwani(BB) tripped. 3. As per PMU, Y-N phase to earth fault within 80ms is observed. 4. As per SCADA, change in load of approx. 75MW is observed in Haryana control area.	0	0.18	0	75	0.000	0.151	40983	49547	80

Northern Regional inter regional lines tripping for July-22

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	400 kV Varanasi-Biharshariff (PG) Ckt-1	POWERGRID	28-Jul-22	16:13	Nil	Line tripped on R-N Fault. Varanasi end details FD= 275.6KM FC=1.613 KA. TWFL Reading :- FD=265.54 KM from Varanasi.	NA	29-Jul-22	13:30	NA	Yes(After 24Hrs)	Yes(After 24Hrs)			DR/EL not submitted in .cfg formate.(DR/EL submitted as pdf image)
2	800 kV HVDC Champa-Kurukshetra(PG) Pole-4	POWERGRID	19-Jul-22	08:09	Nil	Pole-3&4 blocked on "Filter control block due to filter Power Limit"	GI-2	19-Jul-22	09:33	NA	Yes(After 24Hrs)	No			Issue in RPC (issue in existing software with D type filter in service) must be resolved.
3	800 kV HVDC Champa-Kurukshetra(PG) Pole-3	POWERGRID	19-Jul-22	08:09	Nil	Pole-3&4 blocked on "Filter control block due to filter Power Limit"	GI-2	19-Jul-22	11:38	NA	Yes(After 24Hrs)	No			Issue in RPC (issue in existing software with D type filter in service) must be resolved.
4	220 kV Auraiya(NT)-Mehgaon(MP) (MPSEB) Ckt-1	POWERGRID	12-Jul-22	04:28	Nil	Phase to earth fault Y-N	NA	12-Jul-22	07:46	NA	Yes(After 24Hrs)	yes			
5	800 kV HVDC Champa-Kurukshetra(PG) Pole-4	POWERGRID	8-Jul-22	21:24	Nil	Tripped on LANE fault at 21:24 hrs at Champa substation.	NA	8-Jul-22	22:41	NA	No	No			
6	400 kV Kankroli-Zerda (PG) Ckt-1	POWERGRID	2-Jul-22	05:50	Nil	Manually Hand Tripped by Zerda end due to fire in isolator of 400KV Zerda-Vellora line at Zerda. LINE TRIPPED DUE TO DT RECEIEVED AT 05:50Hrs FROM ZERDA END.	NA	2-Jul-22	07:40	NA	Yes(After 24Hrs)	Yes(After 24Hrs)			
7	400 kV Bhinmal-Zerda (PG) Ckt-1	POWERGRID	2-Jul-22	05:39	Nil	LINE TRIPPED DUE TO FAULT IN ZONE-2. FAULT WAS DETECTED AT 108% WHICH WAS BEYOND THE PROTECTED TRANSMISSION LINE. FIRE IN ISOLATOR AT ZERDA END.	NA	2-Jul-22	07:06	NA	Yes(After 24Hrs)	Yes(After 24Hrs)			

 # 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

Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st July 2022 - 31st July 2022

S. No.	Utility	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)	Remark
			Value	%	Value		%	Value		%	Value		%	
1	ACME	5	5	100	5	0	100	5	0	100	5	0	100	DR/EL & Tripping report needs to be submitted
2	ADANI	1	1	100	1	0	100	1	0	100	1	0	100	
3	AHEJ2L	1	1	100	1	0	100	1	0	0	1	0	100	
4	AHEJ4L	1	0	0	0	0	0	0	0	0	0	0	0	
5	ANTA-NT	3	1	33	1	0	33	1	1	50	1	0	33	DR/EL & Tripping report needs to be submitted
6	APMPL	1	1	100	1	0	100	1	0	100	1	0	100	
7	ARP1PL	1	1	100	1	0	100	1	0	100	1	0	100	
8	ASEPL	10	1	10	1	7	33	1	7	33	1	7	33	
9	AURAIYA-NT	1	0	0	0	0	0	0	0	0	0	0	0	
10	BAIRASUIL-NH	1	0	0	0	1	0	0	0	0	0	0	0	
11	BBMB	45	11	24	11	7	29	11	17	39	11	2	26	DR/EL & Tripping report needs to be submitted
12	BUDHIL	1	0	0	0	0	0	0	0	0	0	0	0	
13	CHAMERA-III-NH	1	1	100	1	0	100	1	0	100	1	0	100	DR/EL & Tripping report needs to be submitted
14	CLEANSOLAR_JODHPUR	9	9	100	9	0	100	9	0	100	9	0	100	
15	CPCC1	82	27	33	27	10	38	27	13	39	28	8	38	
16	CPCC2	44	0	0	2	2	5	0	2	0	24	0	55	
17	CPCC3	46	2	4	2	5	5	2	5	5	2	0	4	
18	ESUCRL	1	1	100	1	0	100	1	0	100	1	0	100	
19	FARIDABAD-NT	1	1	100	1	0	100	1	0	100	1	0	100	
20	INDIGRID	1	0	0	0	1	0	0	1	0	0	0	0	
21	NAPP	1	0	0	0	0	0	0	0	0	0	0	0	
22	RAPPA	8	5	63	8	0	100	8	0	100	8	0	100	DR/EL & Tripping report needs to be submitted
23	RAPPB	1	0	0	1	0	100	1	0	100	1	0	100	
24	RAPPC	5	5	100	4	0	80	4	0	80	4	0	80	
25	RENEW	3	3	100	3	0	100	3	0	100	3	0	100	
26	RSEJ3PL	1	1	100	1	0	100	1	0	100	1	0	100	
27	SALAL-NH	10	1	10	0	0	0	0	0	0	0	0	0	
28	SAURYA	2	2	100	2	0	100	2	0	100	2	0	100	DR/EL & Tripping report needs to be submitted
29	SINGOLI	3	2	67	3	0	100	3	0	100	3	0	100	
30	SINGRAULI-NT	3	0	0	3	0	100	3	0	100	3	0	100	
31	SLDC-DV	10	2	20	3	1	33	3	1	33	3	0	30	
32	SLDC-HP	6	0	0	0	6	0	0	6	0	0	0	0	
33	SLDC-HR	19	1	5	3	0	16	1	0	5	1	0	5	DR/EL & Tripping report needs to be submitted
34	SLDC-JK	26	0	0	7	19	100	3	23	100	12	10	75	
35	SLDC-PS	20	6	30	13	4	81	13	3	76	18	0	90	
36	SLDC-RS	70	0	0	10	0	14	10	0	14	13	0	19	
37	SLDC-UK	28	0	0	0	8	0	0	14	0	0	1	0	
38	SLDC-UP	139	23	17	35	11	27	35	16	28	34	3	25	
39	STERLITE	9	0	0	0	1	0	0	1	0	2	3	33	
40	TANAKPUR-NH	4	0	0	0	3	0	0	3	0	0	0	0	
41	TANDA-NT	4	3	75	3	0	75	3	0	75	3	0	75	DR/EL & Tripping report needs to be submitted
42	TATAPOWER	3	1	33	1	0	33	1	0	33	3	0	100	
43	THAR SURYA 1 PRIVATE LIMITE	2	1	50	1	1	100	1	1	100	1	1	100	
44	UNCHAHAR-NT	2	1	50	1	0	50	1	0	50	1	0	50	

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

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

संदर्भ संख्या/NRLDC/TS-97 दिनांक: 10 अगस्त 2022

सेवा में,
Executive Director
Northern Region Transmission System – I, Head Quarters
Powergrid Corporation of India Ltd.
SCO Bay No. 5-10, Sector 16-A, Faridabad, Haryana-121002

Sub: Non-receipt of Tripping reports and DR/EL for Grid events in CPCC-NR1 control area of POWERGRID.

महोदय/Sir,

Kindly refer to IEGC provision under clause 5.2 (r), which mandates all the users, STU/SLDC and CTU to send information/data including disturbance recorder/ sequential event logger output to RLDC within 24 hrs. of any tripping/grid events in the respective control area.

In view of fast information exchange, NRLDC has developed a tripping portal on which respective user can upload requisite detail along with DR, EL and analysis report. As per the information available at NRLDC, status of data received from CPCC NR-1 for the period of 1st July, 2022 to 31st July, 2022 is tabulated below:

Utility	Total No. of tripping	FIR(Not Received)	DR (Not Received)	DR (NA) as informed by utility	EL (Not Received)	EL (NA) as informed by utility	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility
NR-1	82	27	27	10	27	13	28	8

DR: Disturbance recorder, EL: Event logger, FIR : First information report

Out of 82 nos of events in NR-1, information received at NRLDC for 55 nos of events only. Kindly note that non – submission of the data within 24 hrs. of event not only accounts to violation of IEGC but defeats the basic purpose of analysis, review of the protection system operation/setting etc. Timely analysis can highlight various loopholes/ irregularities and can be used as an excellent way forward for improvement towards enhancing grid security and reliability.

Therefore, it is requested that DR/EL of all the trippings may be **uploaded on Web Based Tripping Monitoring System "https://postda.nrldc.in/Account/Login.aspx"** within 24 hours of the events as per IEGC clause 5.2.r and clause 15.3 of CEA grid standard.

धन्यवाद,

भवदीय

(सोमरा लाकरा)
वरिष्ठ महाप्रबंधक
प्रचालन विभाग, उ°क्षे°भा°प्रे°के

प्रतिलिपि विनम्र सूचनार्थ:

1. सदस्य सचिव, एनआरपीसी, 18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016
2. मुख्य महाप्रबंधक (प्रभारी), उ°क्षे°भा°प्रे°के, 18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016

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 संख्या/NRLDC/TS-15 दिनांक: 10 अगस्त 2022

सेवा में,

CEO
Clean Solar Power (Jodhpur) Private Limited Bhadla
1st Floor, 201, Okhla Industrial estate,
Phase-III, New Delhi-110020

Sub: Non-receipt of DR/EL & Tripping report for tripping of elements at Clean Solar Jodhpur RE station.

महोदय/Sir,

Kindly refer to IEGC provision under clause 5.2 (r), which mandates all the users, STU/SLDC and CTU to send information/data including disturbance recorder/ sequential event logger output to RLDC within 24 hrs of any tripping/disturbance happening in the respective control area.

In view of above provisions, NRLDC has a tripping portal to facilitate fast data exchange in respect of any event/grid disturbance. Credential (User ID & password) to access tripping portal has already provided to all the user. Further, it was also informed vide NRLDC letter dated 5th July, 2022 for data submission in case of grid events.

In spite of our continuous persuasion, it is experienced that various tripping related data is still pending from Clean Solar Jodhpur. Data (DR, EL, FIR) submission status of Clean Solar Jodhpur for 1st July, 2022 to 31st July, 2022 is attached as Annexure-1.

Kindly note that non – submission of this data within 24 hrs. of event not only accounts to violation of IEGC but defeats the basic purpose of tripping analysis review of the protection system operation/setting etc. Timely analysis can highlight various loopholes/ irregularities and can be used as an excellent way forward for improvement towards enhancing grid security and reliability.

IEGC खंड 5.2.r और CEA ग्रिड मानकों की धारा 15.3 के अनुसार सभी से यह अनुरोध किया जाता है कि समस्त ट्रिपिंग घटनाओं के DR/EL 24 घंटे के भीतर ट्रिपिंग निगरानी प्रणाली **"https://postda.nrldc.in/Account/Login.aspx"** पर डाल दिया जाए।

धन्यवाद,

संलग्नक: यथोपरि

भवदीय

(सुरुचि जैन)
उप महाप्रबंधक
प्रचालन विभाग
उ°क्षे°भा°प्रे°के

प्रतिलिपि विनम्र सूचनार्थ:

1. सदस्य सचिव, एनआरपीसी, 18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016
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Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st July 2022 - 31st July 2022

Sr No	Element Name	Outage Date	Outage Time	Reason (as reported)	Status of submission data submission			
					FIR	DR	EL	Tripping report
1	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	07-Jul-22	17:55	Earth fault/Overcurrent protection operated.	Not received	Not received	Not received	Not received
2	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	14-Jul-22	18:18	O/C E/F relay operated	Not received	Not received	Not received	Not received
3	220 KV Bhadla(PG)-CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur) (Cleansolar_Jodhpur) Ckt-1	14-Jul-22	22:02	Snaping of jumper	Not received	Not received	Not received	Not received
4	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	15-Jul-22	14:32	ICT 01 trip on EF/OC	Not received	Not received	Not received	Not received
5	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	17-Jul-22	06:15	Over voltage	Not received	Not received	Not received	Not received
6	220 KV Bhadla(PG)-CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur) (Cleansolar_Jodhpur) Ckt-1	17-Jul-22	08:31	Line fault	Not received	Not received	Not received	Not received
7	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	17-Jul-22	10:50	Over voltage	Not received	Not received	Not received	Not received
8	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	18-Jul-22	03:35	Over voltage	Not received	Not received	Not received	Not received
9	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	19-Jul-22	21:11	Fire detector trip alarm at NIFPS control cubical of ICT-1	Not received	Not received	Not received	Not received

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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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संदर्भ संख्या/NRLDC/TS-15 दिनांक: 10 अगस्त 2022

सेवा में,

CEO
ACME Chittorgarh Solar Energy Pvt. Ltd.
Plot #152, Sector-44, Gurgaon, Haryana-12202

Sub: Non-receipt of DR/EL & Tripping report for tripping of elements at ACME RE station.

महोदय/Sir,

Kindly refer to IEGC provision under clause 5.2 (r), which mandates all the users, STU/SLDC and CTU to send information/data including disturbance recorder/ sequential event logger output to RLDC within 24 hrs of any tripping/disturbance happening in the respective control area.

In view of above provisions, NRLDC has a tripping portal to facilitate fast data exchange in respect of any event/grid disturbance. Credential (User ID & password) to access tripping portal has already provided to all the user. Further, it was also informed vide NRLDC letter dated 5th July, 2022 for data submission in case of grid events.

In spite of our continuous persuasion, it is experienced that various tripping related data is still pending from ACME. Data (DR, EL, FIR) submission status of ACME for 1st July, 2022 to 31st July, 2022 is attached as Annexure-1.

Kindly note that non – submission of this data within 24 hrs. of event not only accounts to violation of IEGC but defeats the basic purpose of tripping analysis review of the protection system operation/setting etc. Timely analysis can highlight various loopholes/ irregularities and can be used as an excellent way forward for improvement towards enhancing grid security and reliability.

IEGC खंड 5.2.r और CEA ग्रिड मानकों की धारा 15.3 के अनुसार सभी से यह अनुरोध किया जाता है कि समस्त ट्रिपिंग घटनाओं के DR/EL 24 घंटे के भीतर ट्रिपिंग निगरानी प्रणाली **"https://postda.nrldc.in/Account/Login.aspx"** पर डाल दिया जाए।

धन्यवाद,

संलग्नक: यथोपरि

भवदीय

सुरुचि

(सुरुचि जैन)
उप महाप्रबंधक
प्रचालन विभाग
उ°क्षे°भा°प्रे°के

प्रतिलिपि विनम्र सूचनार्थ:

1. सदस्य सचिव, एनआरपीसी, 18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016
2. मुख्य महाप्रबंधक (प्रभारी), उ°क्षे°भा°प्रे°के, 18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016

Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st July 2022 - 31st July 2022

Sr No	Element Name	Outage Date	Outage Time	Reason	Status of submission data submission			
					FIR	DR	EL	Tripping report
1	220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1	08-Jul-22	12:34	Tripped due to snapping of B-phase jumper at tower no. 30.	Not received	Not received	Not received	Not received
2	220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1	14-Jul-22	22:35	Jumper breakdown in TATA power 220 KV transmission line	Not received	Not received	Not received	Not received
3	220/33 kV 150 MVA ICT 1 at ACME Solar(ACM)	16-Jul-22	23:20	Sparking and chattering sound observed at Switchgear room due to heavy rain at site.	Not received	Not received	Not received	Not received
4	220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1	24-Jul-22	20:45	Due to voltage fluctuation, DT received at Bhadla	Not received	Not received	Not received	Not received
5	220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1	30-Jul-22	21:12	Tripped Due To Internal Over Voltage Fluctuation	Not received	Not received	Not received	Not received

पावर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड
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POWER SYSTEM OPERATION CORPORATION LIMITED
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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 संख्या/NRLDC/TS-15 दिनांक: 10 अगस्त 2022

सेवा में,

CEO
Renew Solar Power Pvt. Ltd. Bikaner
Commercial Block-1, Zone-6,
Golf Course Road, DLF City phase-V, Gurgaon

Sub: Non-receipt of DR/EL & Tripping report for tripping of elements at RENEW Bikaner RE station.

महोदय/Sir,

Kindly refer to IEGC provision under clause 5.2 (r), which mandates all the users, STU/SLDC and CTU to send information/data including disturbance recorder/ sequential event logger output to RLDC within 24 hrs of any tripping/disturbance happening in the respective control area.

In view of above provisions, NRLDC has a tripping portal to facilitate fast data exchange in respect of any event/grid disturbance. Credential (User ID & password) to access tripping portal has already provided to all the user. Further, it was also informed vide NRLDC letter dated 5th July, 2022 for data submission in case of grid events.

In spite of our continuous persuasion, it is experienced that various tripping related data is still pending from RENEW BIKANER. Data (DR, EL, FIR) submission status of RENEW Bikaner for 1st July, 2022 to 31st July, 2022 is attached as Annexure-1.

Kindly note that non – submission of this data within 24 hrs. of event not only accounts to violation of IEGC but defeats the basic purpose of tripping analysis review of the protection system operation/setting etc. Timely analysis can highlight various loopholes/ irregularities and can be used as an excellent way forward for improvement towards enhancing grid security and reliability.

IEGC खंड 5.2.r और CEA ग्रिड मानकों की धारा 15.3 के अनुसार सभी से यह अनुरोध किया जाता है कि समस्त ट्रिपिंग घटनाओं के DR/EL 24 घंटे के भीतर ट्रिपिंग निगरानी प्रणाली **"https://postda.nrldc.in/Account/Login.aspx"** पर डाल दिया जाए।

धन्यवाद,

संलग्नक: यथोपरि

भवदीय

(सुरुचि जैन)
उप महाप्रबंधक
प्रचालन विभाग
उ°क्षे°भा°प्रे°के

प्रतिलिपि विनम्र सूचनार्थ:

1. सदस्य सचिव, एनआरपीसी, 18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016
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Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st July 2022 - 31st July 2022

Sr No	Element Name	Outage Date	Outage Time	Reason	Status of submission data submission			
					FIR	DR	EL	Tripping report
1	400/33 kV 125 MVA ICT 2 at Bikaner RENEW Solar(RENEW)	05-Jul-22	09:06	ICT 2 Tripped due to Incomer feeder VCB fault.	Not received	Not received	Not received	Not received
2	400 KV Renew SuryaRavi SL_BKN_PG (RSRPL)-Bikaner RENEW Solar(RENEW) (RENEW SURYARAVI (RSRPL)) Ckt-1	26-Jul-22	05:28	Line tripped during charging of Tie bay DUE TO Tie-CB CHARGING COIL FAILURE. Charging attempt failed at 10:50 hrs	Not received	Not received	Not received	Not received

S. No.	Name of the Generatng Station (Capacity in MW)	Date of last PSS tuning / re-tuning performed (in DD/MM/YYYY format)	Date of last Step Response Test performed (in DD/MM/YYYY format)	Report submitted to NRLDC/NRPC (Yes/ No)	Remarks (if any)	Tentative schedule for PSS tuning / re-tuning in FY 2021-22
1	**THDC**					
	TEHRI HPS(4 * 250)	15.12.2021 to 20.12.2021	15.12.2021 to 20.12.2021	Yes	(Report shared vide email dt.19.01.2019)	
	KOTESHWAR HPS(4 * 100)	17/03/2019 to 19/03/2019	17/03/2019 to 19/03/2019	Yes	(Report shared vide email dt.11.02.2021)	
2	**SJVNL**					
	NATHPA-JHAKRI HPS(Unit1 #250)	10.03.2020	-	No	Excitation system upgraded in 2020	
	NATHPA-JHAKRI HPS(Unit2 #250)	14.03.2013	-	No	The existing excitation system is very old and obsoleted forwhich support for PSS tuning is not available from OEM (Mls Voith Hydro), although NJHPS, SJVN has placed work order on 08/12/201 5. Further being the critical component, it is not possible"io get the PSS tuning done from any other vender except OEM (Mls Voith Hydro) being the system and software specific job. Therefore, prpposal for upgradation of the excitation system of this unit is under process and PSS tuning shall be carried out during upgradation of excitation system.	3rd Quarter
	NATHPA-JHAKRI HPS(Unit3 #250)	03.03.2020	-	No	Excitation system upgraded in 2020	
	NATHPA-JHAKRI HPS(Unit4 #250)	14.03.2013	-	NO	The existing excitation system is very old and obsoleted forwhich support for PSS tuning is not available from OEM (Mls Voith Hydro), although NJHPS, SJVN has placed work order on 08/12/201 5. Further being the critical component, it is not possible"io get the PSS tuning done from any other vender except OEM (Mls Voith Hydro) being the system and software specific job. Therefore, prpposal for upgradation of the excitation system of this unit is under process and PSS tuning shall be carried out during upgradation of excitation system.	3rd Quarter
	NATHPA-JHAKRI HPS(Unit5 #250)	14.05.2016	14.05.2016	NO	Excitation system upgraded in 2013	3rd Quarter
	NATHPA-JHAKRI HPS(Unit6 #250)	14.05.2017	14.05.2017	NO	Excitation system upgraded in 2013	3rd Quarter
	RAMPUR HEP(6 * 68.67)	29.11.2014	27.10.2020,10.02.2021	YES	PSS tuning was done at the time of commissioning of Excitation System by OEM (M/s BHEL). Since then response of PSS is checked regularly and found satisfactory.	
3	**HVPNL**					
	PANIPAT TPS(unit1# 250)	29.03.2016	29.03.2016	YES	--	3rd Quarter
	PANIPAT TPS(unit2# 250)	15.01.2018	15.01.2018	YES	--	3rd Quarter
	DCRTPP (YAMUNA NAGAR)(unit1#300)	19-12-2018	19-12-2018	YES	(Report attached)	3rd Quarter
	DCRTPP (YAMUNA NAGAR)(unit1#300)	Will be carried out shortly				
	RGTPP(KHEDAR) (2*600)	5th to 6th July 2013	5th to 6th July 2013	Report attached. Previous record being looked into	No MW capacity addition after 2013 at RGTPP Khedar. No new line addition in vicinity of station	
	JHAJJAR(CLP) (2*660)	20-05-2017	20-05-2017	YES	--	3rd Quarter
4	**NTPC**					
	Rihand (Unit1#500)	03-03-2017	03-03-2017	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit2#500)	02-07-2016	02-07-2016	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit3#500)	15-08-2015	15-08-2015	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit4#500)	25-05-2017	25-05-2017	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit4#500)	11-12-2014	11-12-2014	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	Rihand (Unit5#500)	11-12-2014	11-12-2014	YES	Next test will be done during re-commissioning of unit after O/H	3rd Quarter
	SINGRAULI STPS(Unit1#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit2#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit3#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit4#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit5#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit6#500)	02.05.2018	02.05.2018	NO	--	3rd Quarter

	SINGRAULI STPS(Unit7#500)	15.07.2018	15.07.2018	NO	--	3rd Quarter
	UNCHAHAR I(2 * 210)	29-03-2016	29-03-2016	YES	--	3rd Quarter
	UNCHAHAR II TPS(unit1# 210)	13-07-2019	13-07-2019	YES	--	
	UNCHAHAR II TPS(unit2# 210)	10-08-2018	10-08-2018	YES	--	3rd Quarter
	UNCHAHAR UNIT6#500	-	31.03.2017	YES	--	3rd Quarter
	KOLDAM HPS(4 * 200)	01-07-2015	01-07-2015	YES	--	3rd Quarter
	DADRI GPS(2 * 154.51) (ST- Steam Turbine)	-	18-11-2015	YES	--	3rd Quarter
	ANTA GPS(3 * 88.71)(GT- Gas Turbine)	08-08-2014	08-08-2014	YES	--	3rd Quarter
	ANTA GPS(1 * 153.2)(ST- Steam Turbine)	08-08-2014	08-08-2014	YES	--	3rd Quarter
5	**Aravali Power Company Private Ltd**					
	ISTPP (JHAJJAR)(3 * 500)	-	25-08-2015	YES	--	3rd Quarter
6	**NHPC**					
	CHAMERA HPS (3*180)	06-08-2020	27-12-2019	YES	--	
	CHAMERA II HPS(3 * 100)	11-10-2015	11-10-2015	NO	Replacement of Excitation system in two units	3rd Quarter
	CHAMERA III HPS(Unit1#77)	29-10-2015	07-01-2012	YES	--	3rd Quarter
	CHAMERA III HPS(Unit2,3#77)	29-10-2015	19-06-2012	YES	--	3rd Quarter
	PARBATI III HEP (Unit1# 130)	21-01-2016	21-01-2016	YES	Have been done recetly. The report on PSS turning shall be submitted seperately.	3rd Quarter
	DULHASTI HPS(Unit2#130)	21-01-2020	21-01-2020	YES	--	
	DULHASTI HPS(Unit1#130)	29-12-2019	29-12-2019	YES	--	
	URI HPS(Unit3# 120)	10-01-2021	10-01-2021	YES	--	
	URI HPS(Unit4# 120)	15-02-2021	15-02-2021	YES	--	
	URI HPS(Unit2# 120)	07-03-2016	07-03-2016	YES	--	3rd Quarter
	URI-II HPS(4 * 60)	Mar-14	Mar-14		Re-tunning& Step response test shall be carriedout in 2021-22	
	SALAL HPS (Unit-3,4,5,6 # 115)	16-12-2014	16-12-2014	YES	--	3rd Quarter
	KISHANGANGA(3 * 110)	18-05-20 18	18-05-20 18	YES	--	3rd Quarter
	BAIRASIUL HPS(3 * 60)	30-07-2015	30-07-2016	YES	--	3rd Quarter
	SEWA-II HPS(3 * 40)	09-07-2016	09-07-2016	YES	--	3rd Quarter
	PARBATI III HEP(4 * 130)	16-12-2016	16-12-2016	YES	--	3rd Quarter
	TANAKPUR HPS(Unit1# 31.42)	09-01-2015	09-01-2015	YES	--	3rd Quarter
	TANAKPUR HPS(Unit2,3#31.4)	24-05-2014	24-05-2014	YES	--	3rd Quarter
	DHAULIGANGA HPS(Unit1 ,2# 70)	04-05-2014	17-04-2018	YES	--	3rd Quarter
	DHAULIGANGA HPS(Unit3,4# 70)	26-06-2014	17-04-2018	YES	--	3rd Quarter
7	**PUNJAB**					
	RAJPURA(NPL) TPS(2 * 700)	22-04-2014	22-04-2014	YES	--	3rd Quarter
8	**Rajasthan**					
	KAWAI TPS(Unt1# 660)	08-08-2014	08-08-2014	YES	--	3rd Quarter
	KAWAI TPS(Unt2# 660)	09-10-2014	09-10-2014	YES	--	3rd Quarter
	CHHABRA TPS(Unit 1#250)	22-05-2018	22-05-2018	NO	--	3rd Quarter
	CHHABRA TPS(Unit 2,3,4#250)	04-10-2015	04-10-2015	NO	--	3rd Quarter
	CHHABRA TPS(Unit5# 660)	10-02-2016	10-02-2016	YES	--	3rd Quarter
	CHHABRA TPS(Unit6# 660)	7/28/2018	7/28/2018	YES	--	3rd Quarter
	KALISINDH TPS(Unit1# 600)	10-02-2016	10-02-2016	YES	--	3rd Quarter
	KALISINDH TPS(Unit2# 600)	08-02-2016	08-02-2016	YES	--	3rd Quarter
	KOTA TPS(Unit1#110)	PSS tuning and step response test of Unit#1,2,3,4,6&7 were sucessfully done on 02.03.22 to 04.03.22		YES		3rd Quarter
	KOTA TPS(Unit2#110)				--	3rd Quarter
	KOTA TPS(Unit3#195)				--	
	KOTA TPS(Unit4#195)				--	
	KOTA TPS(Unit6#110)				--	3rd Quarter
	KOTA TPS(Unit7#110)				--	3rd Quarter
	SURATGARH TPS (Unit5#250)	14-03-2022	14-03-2022	Yes	--	3rd Quarter
	SURATGARH TPS (Unit2,4#250)	06-06-2022		Yes	--	
	SURATGARH TPS (Unit1,3,,6#250)	05.02.22 & 06.02.22		Yes	--	
	SURATGARH SSCTPS (Unit 7&8)	PSS tuning and step response test of Unit#7&8 were carried out on 28.11.20 & 30.03.21.				
	RAJWEST (IPP) LTPS(Unit1# 135)	26-04-2016	26-04-2016	No	--	3rd Quarter

	RAJWEST (IPP) LTPS(Unit2# 135)	14-07-2016	14-07-2016	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit3# 135)	03-01-2014	03-01-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit4# 135)	03-11-2015	03-11-2015	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit5# 135)	21-09-2014	21-09-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit6# 135)	14-08-2014	14-08-2014	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit7# 135)	20-02-2016	20-02-2016	No	--	3rd Quarter
	RAJWEST (IPP) LTPS(Unit8# 135)	11-06-2014	11-06-2014	No		3rd Quarter
9	**UTTAR PRADESH**					
	ANPARA-C TPS(Unit1# 600)	22-08-2015	22-08-2015	Yes	--	3rd Quarter
	ANPARA-C TPS(Unit2# 600)	08-03-2016	08-03-2016	Yes	--	3rd Quarter
	ROSA TPS(Unit1 #300)	05-10-2021	05-10-2021	Yes	--	
	ROSA TPS(Unit2# 300)	18/2/2018	18/2/2018	Yes	--	4th Quarter
	ROSA TPS(Unit3 # 300)	03-02-2017	03-02-2017	Yes	--	4th Quarter
	ROSA TPS(Unit4# 300)	05-10-2021	05-10-2021	Yes	--	
	Anpara-A (Unit1#210)	27.09.2021	27.09.2021	Yes	--	
	Anpara-A(Unit2#210)	27.09.2021	27.09.2021	Yes	--	
	Anpara-A(Unit3#210)	25.09.2020	25.09.2020	Yes	--	
	Anpara-B(Unit4#500)	07.12.2014	07.12.2014	Yes		3rd Quarter
	Anpara-B (Unit5#500)	17.08.2014	Dec., 2019	Yes	--	
	Anpara-D(Unit6#500)	15.11.2016	15.11.2016	No	--	3rd Quarter
	Anpara-D (Unit7#500)	15.04.2017	15.04.2017	No	--	3rd Quarter
	Obra-B(Unit9#200)	22.03.2016	22.03.2016	Yes	Report enclosed.	3rd Quarter
	Obra-B(Unit10#200)	28.06.2016	20.06.2016	Yes	Report enclosed.	3rd Quarter
	Obra-B (Unit11#200)	21.01.2017	21.01.2017	Yes	Report enclosed.	3rd Quarter
	Obra-B (Unit12#200)	Unit taken on load after R&M on 22		-	PSS tuning and SRT scheduled in April, 2021.	
	Obra-B(Unit13#200)	Unit closed under R&M.		-	PSS tuning and SRT scheduled in April, 2021.	
	Parichha-B(Unit3#210)	08.01.2016	08.01.2016	Yes	--	3rd Quarter
	Parichha-B (Unit4#210)	08.01.2016	08.01.2016	Yes	--	3rd Quarter
	Parichha-C (Unit5#250)	08.02.2020	08.02.2020	No	--	
	Parichha-C(Unit3#250)	09.01.2016	09.01.2016	No	--	3rd Quarter
	Harduaganj (Unit8#250)	20.08.2015	20.08.2015	No	--	3rd Quarter
	Harduaganj (Unit3#250)	13.04.2016	13.04.2016	No	--	3rd Quarter
	Harduaganj(Unit7#105)	16.07.2021	16.07.2021	yes	--	
	Harduaganj(Unit9#250)	16.07.2021	16.07.2021	yes	--	
	LALITPUR TPS(Unit1# 660)	23.02.2022	23.02.2022	yes	--	
	LALITPUR TPS(Unit2# 660)	30.03.2021	30.03.2021	yes	--	
	LALITPUR TPS(Unit3# 660)	15.01.2022	15.01.2022	yes	--	
	ALAKNANDA HEP(Unit1# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	ALAKNANDA HEP(Unit2# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	ALAKNANDA HEP(Unit3# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	ALAKNANDA HEP(Unit4# 82.5)	12.072017	12.072017	No	--	3rd Quarter
	MEJA TPS(Unit1#660)	16.10.2018	05.09.2017	yes	--	3rd Quarter
	MEJA TPS(Unit2#660)	16.01.2021	18.05.2020	yes	--	
	Bara Unit#1				Step test for PSS checking was not performed since commissioning by erstwhile owner as per information available. PSS tuning along with step test will be performed in next AOH (May 2022 or planned shutdown)	
	Bara Unit#2	01.02.2022	01.02.2022	Yes		
	Bara Unit#3				Step test for PSS checking was not performed since commissioning by erstwhile owner as per information available. PSS tuning along with step test will be performed in next AOH (May 2022 or planned shutdown)	
	Vishnuprayag Unit#1	06/02/2021	06/02/2021	Submitted in the prescribed format provided by		
	Vishnuprayag Unit#2	06/04/2021	06/04/2021			
	Vishnuprayag Unit#3	06/04/2021	06/04/2021			

	Vishnuprayag Unit#4	05/02/2021	05/02/2021	NRLDC to SE (R&A)		
10	**BBMB**					
	BHAKRA HPS(Unit1#108)	--	--	No	PSS is not provided ,shall be provided in ongoing RM&U	
	BHAKRA HPS(Unit1#108)	24.07.2015	24.07.2015	No	--	3rd Quarter
	BHAKRA HPS(Unit3#126)	--	--	No	PSS is not provided ,shall be provided in ongoing RM&U	
	BHAKRA HPS(Unit4#126)	--	--	No	--	
	BHAKRA HPS(Unit5#126)	--	--	No	--	
	BHAKRA HPS(Unit6#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	18.02.2016	18.02.2016	No	--	3rd Quarter
	BHAKRA HPS(Unit7#157)	18.02.2017	18.02.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#1 165)	08.08.2017	08.08.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#2 165)	08.08.2018	08.08.2018	No	--	3rd Quarter
	DEHAR HPS(Unit#3 165)	08.08.2019	08.08.2019	No	--	
	DEHAR HPS(Unit#4 165)	02.07.2017	02.07.2017	No	--	3rd Quarter
	DEHAR HPS(Unit#5 165)	08.08.2019	08.08.2019	No	--	
	DEHAR HPS(Unit#6 165)	02.07.2017	02.07.2017	No	--	3rd Quarter
	PONG HPS(6 * 66)	--	--	--	PSS not provided.RM&U agenda under considration.	