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/106/01/2022/9802-9843 दिनांक: 14.10.2022

विषय: प्रचालन समन्वय उप-समिति की 200वीं बैठक की कार्यसूची।

Subject: Agenda of 200th OCC meeting.

प्रचालन समन्वय उप-समिति की **200वीं** बैठक का आयोजन वीडियो कॉन्फ्रेंसिंग के माध्यम से दिनांक **18.10.2022** को **11:00** 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।

200th meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **18.10.2022** from **11:00 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.

(संतोष कुमार)
अधीक्षण अभियंता (प्रचालन)

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

18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016 फोन:011-26513265 ई-मेल: seo-nrpc@nic.in वेबसाईट: www.nrpc.gov.in
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1. Confirmation of Minutes

The minutes of the 199th OCC meeting were issued vide letter of even number dated 12.10.2022.

Sub-committee may deliberate and kindly confirm the Minutes.

2. Review of Grid operations

2.1 Power Supply Position (Provisional) for September 2022

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

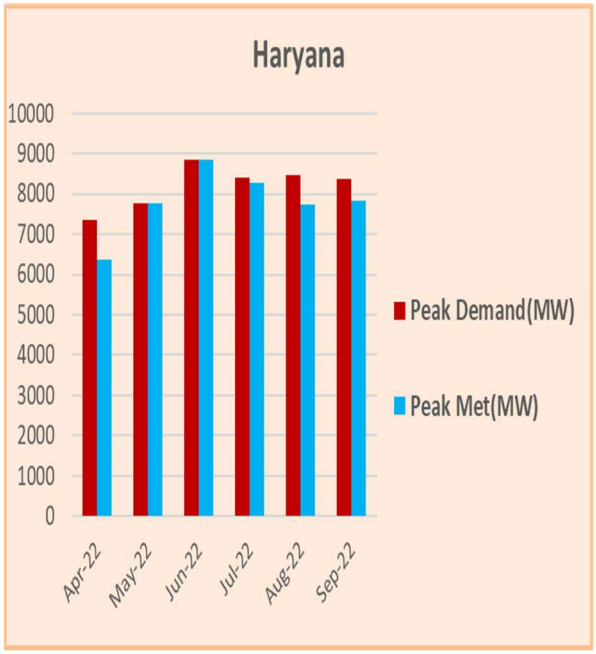
State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	180	176	-2.4%	420	374	-11.0%
	(Req)	150	176	17.1%	410	374	-8.8%
DELHI	(Avl)	3864	3445	-10.9%	6900	6687	-3.1%
	(Req)	3705	3445	-7.0%	6900	6687	-3.1%
HARYANA	(Avl)	5490	6144	11.9%	11660	12236	4.9%
	(Req)	6860	6161	-10.2%	12160	12236	0.6%
HIMACHAL PRADESH	(Avl)	1128	990	-12.3%	1710	1748	2.2%
	(Req)	1042	994	-4.6%	1695	1748	3.1%
J&K and LADAKH	(Avl)	1680	1487	-11.5%	3490	2967	-15.0%
	(Req)	1580	1502	-4.9%	2660	3137	17.9%
PUNJAB	(Avl)	7506	7713	2.8%	14000	14187	1.3%
	(Req)	7870	7713	-2.0%	14000	14187	1.3%
RAJASTHAN	(Avl)	8680	8708	0.3%	18610	15843	-14.9%
	(Req)	7700	8742	13.5%	14000	15843	13.2%
UTTAR PRADESH	(Avl)	15000	13095	-12.7%	25500	26002	2.0%
	(Req)	14700	13225	-10.0%	25500	26002	2.0%
UTTARAKHAND	(Avl)	1302	1289	-1.0%	2110	2313	9.6%
	(Req)	1290	1300	0.8%	2160	2313	7.1%
NORTHERN REGION	(Avl)	44831	43047	-4.0%	78100	75700	-3.1%
	(Req)	44897	43259	-3.6%	75300	76500	1.6%

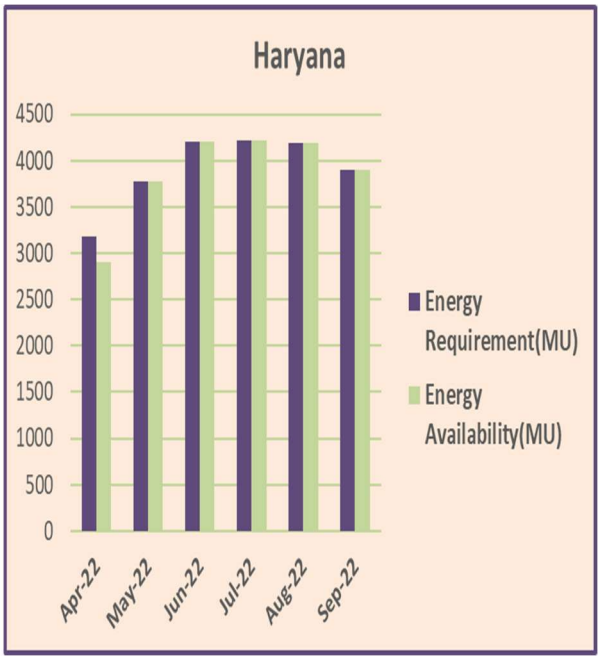
As per above, negative / significant variation (≥5%) in Actual Power Supply Position(Provisional) vis-à-vis Anticipated figures is observed for the month of September-2022 in terms of Energy Requirement for Chandigarh, Delhi, Haryana, HP, UTs of J&K and Ladakh, Punjab, Rajasthan, UP, and in terms of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

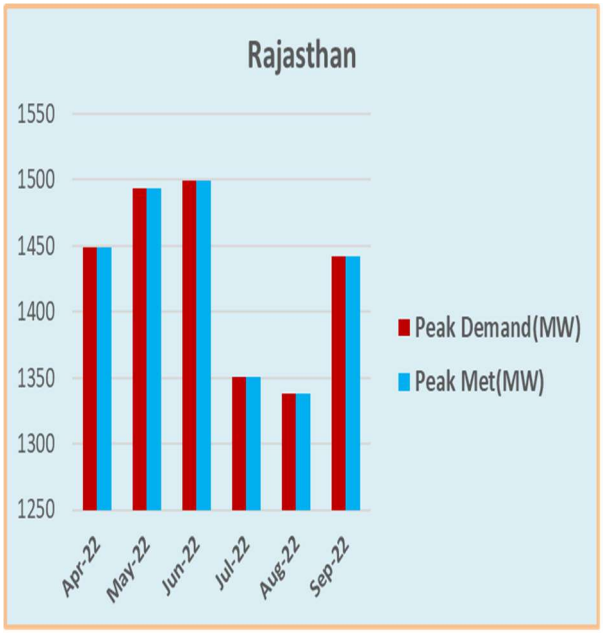
All SLDCs are requested to furnish provisional and revised power supply position in prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively for the compliance of Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.

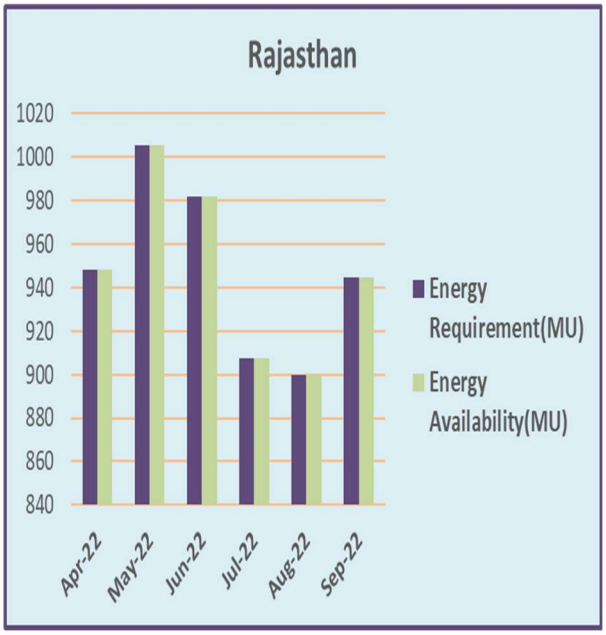
2.2 Power Supply Position of NCR

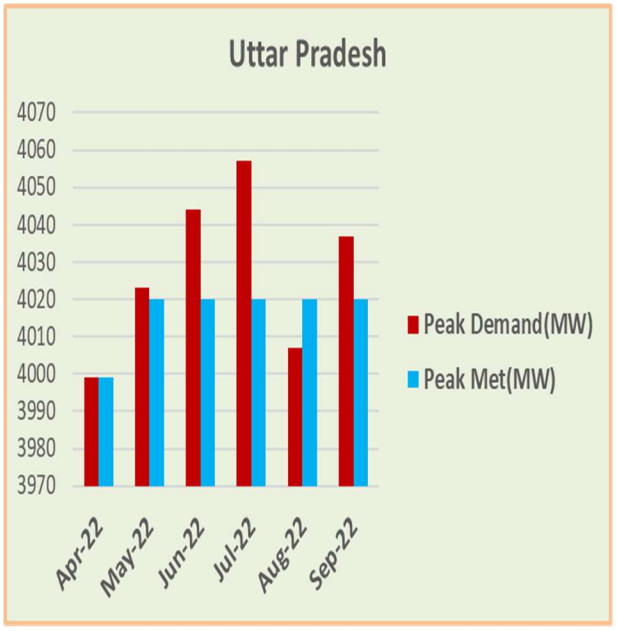
NCR Planning Board (NCRPB) is closely monitoring the power supply position of National Capital Region. Monthly power supply position for NCR till the month of September-2022 is available on NRPC website (http://164.100.60.165). Power supply position during the current financial year is shown as under:

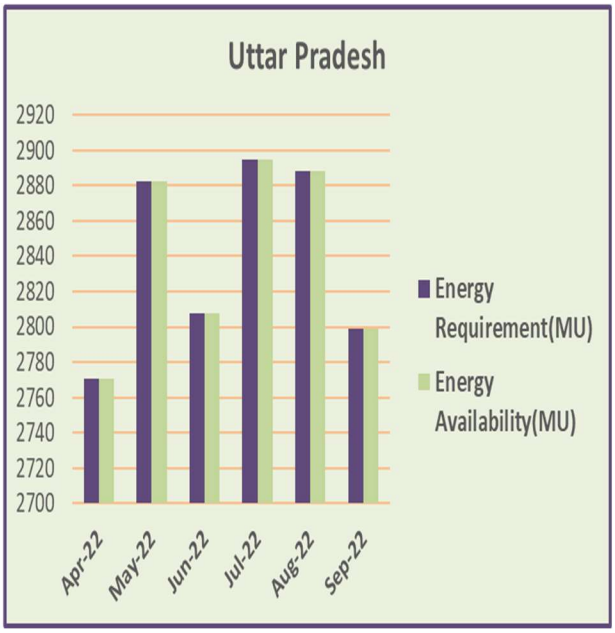


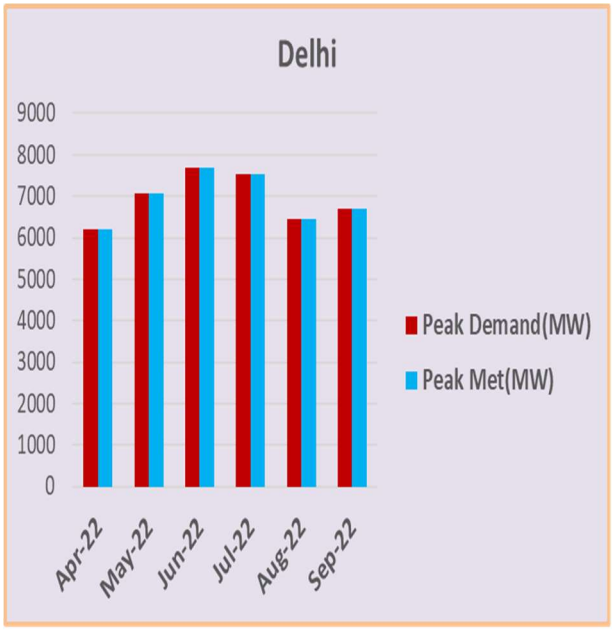


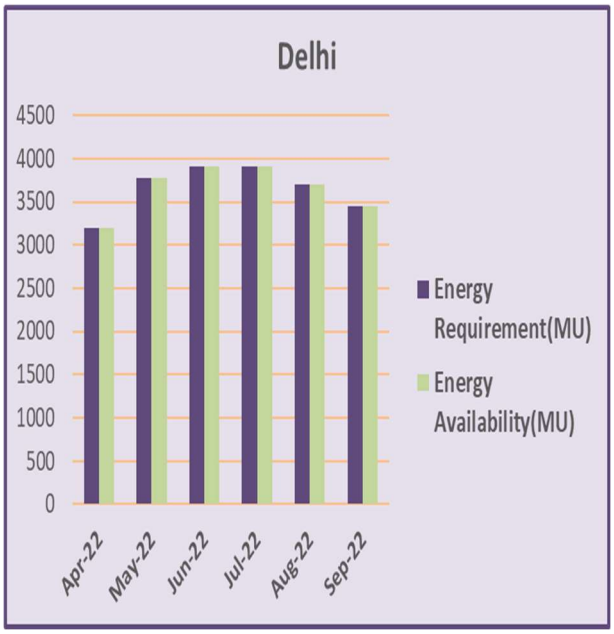












3. Maintenance Programme of Generating Units and Transmission Lines

3.1. Maintenance Programme for Generating Units

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

3.2. Outage Programme for Transmission Elements

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

4. Planning of Grid Operation

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

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	110	270	No Revision submitted
	Requirement	100	210	
	Surplus / Shortfall	10	60	
	% Surplus / Shortfall	10.0%	28.6%	
DELHI	Availability	2110	5980	No Revision submitted
	Requirement	2000	4060	
	Surplus / Shortfall	110	1920	
	% Surplus / Shortfall	5.5%	47.3%	
HARYANA	Availability	4230	10700	No Revision submitted
	Requirement	3610	6930	
	Surplus / Shortfall	620	3770	
	% Surplus / Shortfall	17.2%	54.4%	
HIMACHAL PRADESH	Availability	969	1841	7-Oct-22
	Requirement	966	1830	
	Surplus / Shortfall	3	11	
	% Surplus / Shortfall	0.3%	0.6%	
J&K and LADAKH	Availability	940	3340	No Revision submitted
	Requirement	1660	2560	
	Surplus / Shortfall	-720	780	
	% Surplus / Shortfall	-43.4%	30.5%	
PUNJAB	Availability	4970	10920	No Revision submitted
	Requirement	3340	6200	
	Surplus / Shortfall	1630	4720	
	% Surplus / Shortfall	48.8%	76.1%	
RAJASTHAN	Availability	7640	18430	No Revision submitted
	Requirement	8680	13810	
	Surplus / Shortfall	-1040	4620	
	% Surplus / Shortfall	-12.0%	33.5%	
UTTAR PRADESH	Availability	9000	17000	12-Oct-22
	Requirement	8700	17000	
	Surplus / Shortfall	300	0	
	% Surplus / Shortfall	3.4%	0.0%	
UTTARAKHAND	Availability	1024	2043	7-Oct-22
	Requirement	1050	2070	
	Surplus / Shortfall	-26	-27	
	% Surplus / Shortfall	-2.5%	-1.3%	
NORTHERN REGION	Availability	30993	65700	
	Requirement	30106	50900	
	Surplus / Shortfall	887	14800	
	% Surplus / Shortfall	2.9%	29.1%	

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

7.29 A meeting was convened by NRPC Sectt. with officials of NRLDC, UPSLDC & NTPC Unchahar on 07.10.2022 for discussing implementation of Unchahar Islanding schemes. MoM of the same is attached at **Annexure-A.III**.

7.30 Uttarakhand SLDC vide letter dated 07.10.2022 (copy enclosed as **Annexure-A.IV)** has submitted the feasibility study report of Dehradun as proposed islanding scheme.

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 10th October 2022) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	77.25	13	**2.8**
ANPARA TPS	2630	86.57	13	14.1
BARKHERA TPS	90	58.20	21	7.2
DADRI (NCTPP)	1820	64.14	21	8.3
GH TPS (LEH.MOH.)	920	50.06	21	15.3
GOINDWAL SAHIB TPP	540	44.00	21	4.4
HARDUAGANJ TPS	1265	54.22	21	**1.7**
INDIRA GANDHI STPP	1500	66.46	21	9.4
KAWAI TPS	1320	48.01	21	17.3
KHAMBARKHERA TPS	90	53.37	21	7.2
KOTA TPS	1240	70.14	21	**3.9**
KUNDARKI TPS	90	50.12	21	9.6
LALITPUR TPS	1980	75.37	21	5.0

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
MAHATMA GANDHI TPS	1320	76.77	21	18.6
MAQSOODPUR TPS	90	53.46	21	9.1
MEJA STPP	1320	72.42	21	9.0
OBRA TPS	1094	49.71	21	**2.9**
PANIPAT TPS	710	84.34	21	4.6
PARICHHA TPS	1140	58.74	21	**0.6**
PRAYAGRAJ TPP	1980	73.31	21	**1.5**
RAJIV GANDHI TPS	1200	74.51	21	11.7
RAJPURA TPP	1400	93.87	21	16.7
RIHAND STPS	3000	87.03	13	25.0
ROPAR TPS	840	56.18	21	18.9
ROSA TPP Ph-I	1200	73.43	21	**1.1**
SINGRAULI STPS	2000	86.06	13	15.4
SURATGARH TPS	1500	44.56	21	4.7
TALWANDI SABO TPP	1980	74.59	21	4.6
TANDA TPS	1760	59.84	21	5.9
UNCHAHAR TPS	1550	73.43	21	9.8
UTRAULA TPS	90	58.77	21	9.8
YAMUNA NAGAR TPS	600	88.23	21	9.8
CHHABRA-I PH-1 TPP	500	67.37	21	**3.8**
KALISINDH TPS	1200	68.95	21	**2.5**
SURATGARH STPS	1320	0.00	21	7.6
CHHABRA-I PH-2 TPP	500	40.91	21	**1.1**
CHHABRA-II TPP	1320	60.84	21	**3.5**

9. Deemed Availability of relocation/height raising of 400kV Jharli-Mundka Transmission line at Silani Chowk in Jhajjar Distt.-reg. (Agenda by NHAI)

9.1 The aforesaid agenda was also deliberated in 199th OCC meeting wherein OCC forum provisionally approved the shutdown of 400kV Jharli-Mundka Transmission line from 15th Oct to 25th Oct, subject to completion of porcelain insulator work by Haryana on both circuits of 400kV Jhajjar-Daulatabad line by 15th Oct'22.

9.2 In this regard, for final deliberation on shutdown of 400kV Jharli-Mundka Transmission line a meeting was taken on 10.10.2022 by MS, NRPC with concerned representative of NHAI, APCPL and Haryana STU. In the meeting, Haryana STU representative intimated that due to heavy waterlogging at most of the tower locations replacement of porcelain insulator work of both circuits of 400kV Jhajjar-Daulatabad transmission line could not be completed as the schedule decided in the 199th OCC meeting.

9.3 Henceforth MS, NRPC desired that the matter may again be taken up for deliberation in the 200th OCC meeting along with NRLDC officials and other stakeholders.

Members may kindly deliberate.

10. Punching of Outages on OMS Portal of NRLDC (Agenda by NRPC Sectt.)

10.1 MS, NRPC has desired to hold OCC meeting in the 2nd week of every month from November onwards.

10.2 In view of this to give appropriate time to NLDC/NRLDC for carrying out the system studies and to seek comments from beneficiaries for each outages requested in the OMS portal, the revised proposed timelines for utilities to punch their respective outages in OMS portal is as follows:

Type of Element	**Dates b/w which outage to be punched in NRLDC OMS portal**
For HVDC and inter-regional lines (under NLDC jurisdiction)	1st to 5th of every month
For Generating utilities and 440kV and below HVAC lines (under NRLDC jurisdiction)	1st to 5th of every month

Members may kindly note.

11. Regarding NPCIL RAPS-B Unit-1 outage w.e.f 27/10/2022 to 28/05/2024 (around 577 days) for mandatory replacement of reactor components. (Agenda by RAPS)

11.1. NPCIL RAPS-B vide its letter dated 12.10.2022 (copy attached as **Annexure-A.V**) has mentioned that NPCIL RAPS-B unit-1 outage is being taken for mandatory replacement of Enmasse Reactor Coolant Channels & reactor feeders w.e.f 27/10/2022 to 28/05/2024 (around 577 days) as per LGBR subcommittee meeting dtd 27/10/2021 & 27/09/2022 and OCC-199 approval dtd 16/09/2022.

11.2. Further, NPCIL has also mentioned that RAPS-B unit-2 will continue to operate & no planned outage is proposed (except emergency/ forced shutdown / trips if any) in this period (27/10/2022 to 28/05/2024).

11.3. In this regard, NPCIL has stated that beneficiary DISCOMs (UPPCL, JKPCL, PSPCL, HPPC & Rajasthan) may kindly arrange respective 50% share from other resources, for meeting their requirements during the period (27/10/2022 to 28/05/2024)

Members may kindly note.

12. Setting up of 3000TPD Municipal Solid Waste (MSW) based Waste to Energy (WtE) facility at Narela- Bawana by MCD. (Agenda by NR-1 Powergrid)

12.1 NR-1 Powergrid vide letter dated 06.10.2022 (copy attached as **Annexure-A.VI**) has intimated that MCD for Setting up of 3000TPD Municipal Solid Waste (MSW) based Waste to Energy (WtE) facility at Narela- Bawana has requested Powergrid for shifting of following transmission lines on multi-circuit towers so that the required space for setting up of plant can be made available:

- 400 kV D/C Bawana-Bahadurgarh-Bhiwani transmission line of Powergrid
- 400kV D/C Bawana-Bamnauli transmission line of DTL

12.2 Further, NR-1 Powergrid has intimated that in a meeting held at the office of Chief Secretary, Delhi with the concerned stakeholders it was decided to shift these lines of different utilities on multi-circuit towers in view of national importantance of the project.

Members may kindly deliberate.

13. Upgradation of Equipment in 220KV Zainakot bays at Wagoora S/S (Agenda by NR-2 Powergrid)

13.1 NR-2 Powergrid has mentioned that JKPTCL vide its letter Reference No. TLMD-IV/1669-72 dated 20.09.2022 (copy attached as **Annexure-A.VII**) received on 12.10.2022, Executive Engineer TLMD-IV, Pampore has intimated that JKPTCL is going to carryout re-conductoring of 220KV Wagoora Zainakot-1 with HTLS conductor including strengthening of bay at Zainakot end. As per JKPTCL, after re-conductoring, thermal rating of 220KV Wagoora Zainakot Ckt-1 will be 1600 Amp. They had also intimated POWERGRID to upgrade Zainakot 1 bay at Wagoora to match line rating.

13.2 Further, Powergrid has also mentioned that these bays were commissioned at Wagoora S/S in 1997 and has completed their useful life of 25 Years. At present, 800A CTs are in service at Wagoora end and there is requirement of upgradation of bay CT and other hardware for said bays at Wagoora end under ADDCAP.

13.3 400/220KV Wagoora S/S in situated in Kashmir area of J&K UT meeting load requirements of Kashmir valley and LEH area of J&K UT. At Wagoora S/S, following are the 220kV feeders meeting load requirements of the area:

- 220KV Wagoora-Pampore 1&2, owned by POWERGRID and meets load requirement of Kashmir area.
- 220KV Wagoora-Kishen Ganga-1&2, owned by POWERGRID and evacuates POWER from Kishen-Ganga HEP.
- 220KV Wagoora-Zainakot-1, owned by JKPTCL, meeting load requirements of Kashmir area. Further 220/132/66KV Zainakot S/S of JKPTCL provides connectivity of LEH area to National GRID.

Members may kindly deliberate.

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

14. NR Grid Highlights for September 2022

Maximum energy consumption of Northern Region was **1710.43 Mus** on 09th September'22 and it was 23.2 % higher than September' 2021 (1388.05 Mus 06th September'21)

Average energy consumption per day of Northern Region was **1435.92 Mus** and it was 18.5 % higher than September'21 (1211.88 Mus per day)

Maximum Demand met of Northern Region was **75673 MW** on 09th September'22 @13:00 hours (*based on data submitted by Constituents)* as compared to 63559 MW on 06th September'21 @21:00 hours.

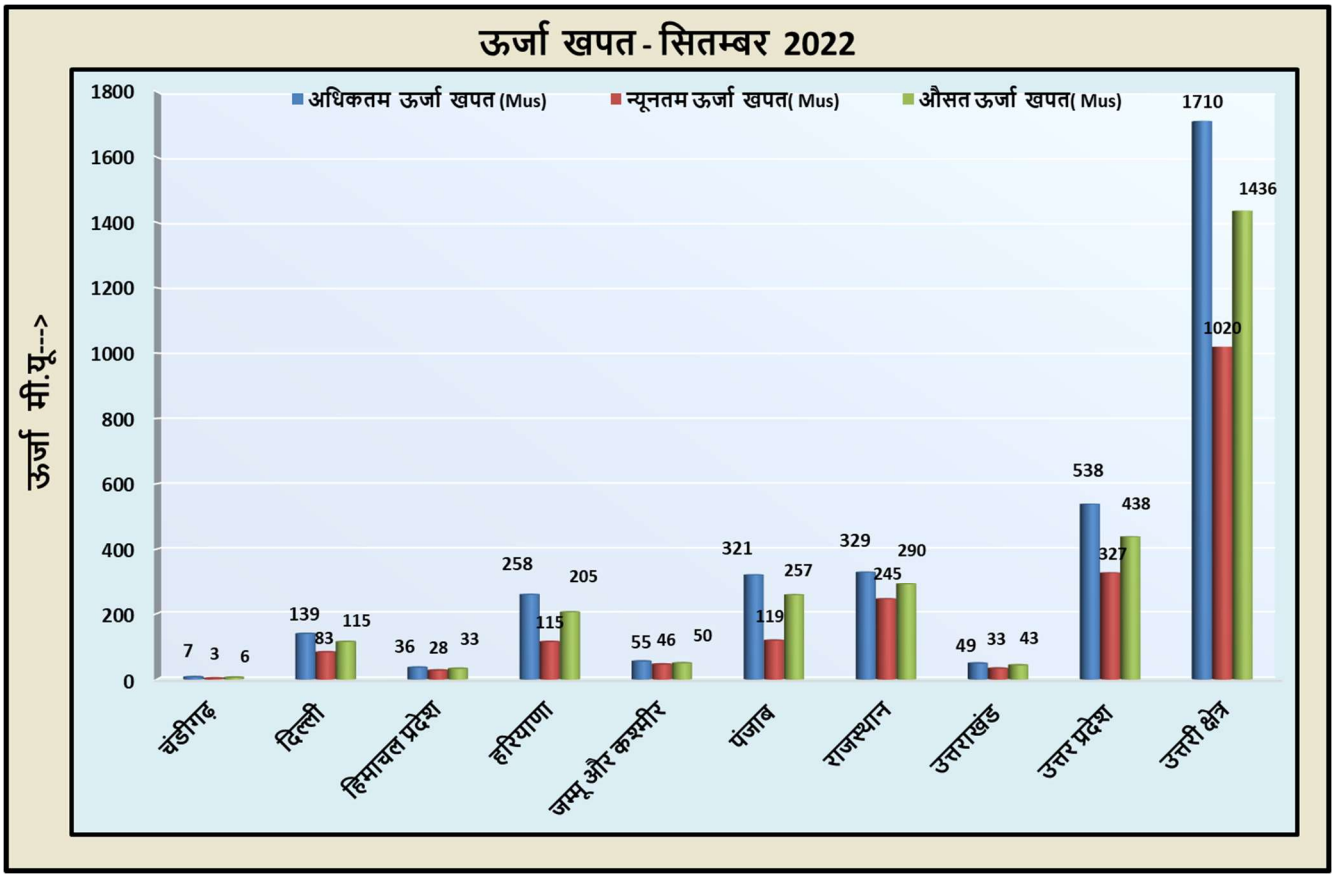
Northern Region all time high values recorded in September'2022:

State (Maximum Demand Met)	**All Time High Record**		**Previous Record (upto August-22)**	
	Value (MW)	**Achieved on**	**Value (MW)**	**Achieved on**
उत्तर प्रदेश	26002	10.09.2022 at 21:00	25951	15.07.2022 **को** 23:00 **बजे**
जम्मू और कश्मीर (UT) **तथा लद्दाख़** (UT)	2967	30.09.2022 at 07:00	2826	03.02.2022 **को** 19:00 **बजे**

State (Maximum Demand Met)	**All Time High Record**		**Previous Record (upto August-22)**	
	Value (MU)	**Achieved on**	**Value (MU)**	**Achieved on**
राजस्थान	328.86	09.09.2022	323.84	09.06.2022

Solar Generation	**All Time High Record**		**Previous Record (upto August-22)**	
	Value (MU)	**Achieved on**	**Value (MU)**	**Achieved on**
	121.81	03-09-2022	118.73	10.08.2022

Energy Consumptions



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

State/ Region	September - 2021	September - 2022	% Diff
Chandigarh	5.5	5.9	5.8
Delhi	100.2	114.7	14.4
HP	31.4	32.8	4.7
Haryana	165.2	204.8	24.0
J&K	44.5	49.6	11.5
Punjab	218.2	256.9	17.7
Rajasthan	218.3	290.3	33.0
Uttarakhand	42.2	43.4	2.9
Uttar Pradesh	386.5	437.6	13.2
Northern Region	**1211.9**	**1435.9**	**18.5**

Frequency Data

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Sep'2	50.00	50.31	49.50	5.94	80.77	13.29

2						
Sep'21	50.00	50.23	49.50	4.87	77.01	18.12

For kind information of members.

15. Winter preparedness

In 199 OCC meeting, it was deliberated that winter in Northern region is likely to start from mid of October till February end, and the challenges faced during these months are well known to all the utilities. During winter, demand of NR states except Rajasthan and hilly states starts reducing. With decreasing temperatures and festivals, winter also brings some severe challenges to NR grid operators:

(i) Load-generation balance including matching ramp in demand which is increasing with increased solar generation
(ii) High voltages in grid
(iii) EHV lines trip during fog/Smog
(iv) Load crash due to inclement weather
(v) Frequent tripping of ICTs on overflux and lines on overvoltage

Accordingly, utilities were requested to follow following measures for safe and secure operation of grid during winter months:

- Forecast of demand ramp is important and so SLDCs were advised to forecast demand and ramp rate of demand especially for morning and evening peaks so that commensurate ramping of generation can also be planned.
- ISGS hydro stations are being scheduled by NRLDC to provide maximum support and requisite ramp rate during peak hours, keeping in view their forecasted daily energy availability as well as mechanical availability. SLDCs were also requested to optimally schedule their hydro and gas generation to make sure that demand as well as ramp requirements are met.
- Minimize generation to technical minimum as per IEGC guidelines /CERC directions during low demand.
- Optimum utilization of Hydro resources for meeting peak hour demand.
- Ensure additional trained manpower is available especially during night hours at all major control centers/ substations
- All system operators and transmission utilities shall regularly monitor weather forecast site (Weather portal for power sector)
- All the protection settings are as approved by NRPC so as to avoid any false tripping on overvoltage or overflux protection.
- Priority wise cleaning & replacement of damaged insulators.
- Monitor progress of cleaning and replacement of porcelain insulator with polymer insulator and furnishing updated status to NRPC/NRLDC.

Apart from above following measures need to be taken to manage high voltages in the grid during winter months:

- Ensuring disconnection of capacitors & switch on of reactors.
- Ensuring healthiness of all commissioned reactors in the system
- Monitoring of reactive power of generators and exchange of reactive power with ISTS through SCADA displays.

- Ensuring reactive power support (absorption) from generating stations by operating units upto their capability limits.
- Synchronous condenser operation especially of hydro units during night hours for dynamic voltage support. Some of the generators have already been tested successfully (Tehri, Chamera, Pong etc.) in synchronous condenser mode and shall be available for condenser mode of operation as and when required. As discussed in 199 OCC, RSD is expected to be used as synchronous condenser from this winter.

S.No	Generator	Capacity (MW)
1	Pong	396
2	Larji	126
3	Ranjit Sagar HEP	600
4	Rana Pratap Sagar	172
6	Tehri	500
7	Chamera -2	300

- ***Punjab may provide update on RSD. HP may provide update on Larji. Other utilities are also requested to provide update on utilising other hydro/ gas generators as synchronous condenser.***
- ICT Tap Optimization at 400kV & above is carried out every year by NRLDC. Same exercise needs to be carried out by SLDCs at 220kV & below levels.
- Opening of EHV lines based on expected voltage reduction and also considering security & reliability of system. This exercise to be done at 400kV and above voltage level by NRLDC and 220kV and below voltage level by SLDCs, but only as the last resort after utilizing all other resources.
- To ensure that line reactors are available even after opening of lines are optimally utilized it is necessary that updated details of all the stations where the provision of using line reactors as bus reactors exist, is available at all control centers. The Reactive power document being compiled by NRLDC has the details of all such line reactors. Last updated document is available at NRLDC website under documents section: *https://nrldc.in/download/nr-reactive-power-management-2022/?wpdmdl=9908*
- All utilities were requested to go through the document and report if any incorrect or missing information is noticed. The document is being utilized in real-time operation by control room operators at NRLDC, and thus it is necessary that list of all reactors where such provision is available are updated in the document.

Utilities are requested to prepare and share plan for measures to be taken by them for carrying out pre-winter maintenance activities. Same may be shared by utilities via mail with NRPC/NRLDC before OCC meeting.

The persistent issue of low voltages at 400/220kV Hindaun and Alwar substations were discussed in 199th OCC meeting. It was discussed that even after utilizing margin of ICT taps at these substations, continuous low voltages are being observed. The issue

has been persisting for last 3-4 years and still no concrete action has been taken from RVPN end. OCC expressed concern on the low voltage issue at Hindaun and Alwar and RVPN was asked to expedite measures to remove low voltages in this area at the earliest.

Rajasthan may please provide update.

Members may please discuss.

16. TTC/ATC of state control areas for winter 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 November 2022 (**Annexure-B.I**) 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.II**.

Punjab
Since demand of Punjab is much lower during winter months, it is desirable that Punjab SLDC reassesses the ATC/TTC limits for winter assuming the expected load generation balance during this period. Punjab SLDC is requested to ensure sufficient intrastate generation on bar during winter months, which would help in providing the required MVAR absorption to limit high voltages during winter months

Punjab SLDC is requested to share:

- ATC/TTC limits for low demand period i.e. winter months based on anticipated state generation scenario.
- Plan to control high voltages during winter months

UP
UP SLDC to provide update on:

- ATC/TTC limits for low demand period i.e. winter months based on anticipated state generation scenario.
- Status of Obra and Sohawal SPS
- Reason for non-operation of SPS at Gorakhpur(UP) on 19.09.2022.

Rajasthan
Rajasthan SLDC to provide update on:

- Revised ATC/TTC limits of Rajasthan state control area for winter 2022-23. NRLDC had shared few observations on the ATC/TTC limits assessed by Rajasthan state control area.
- SPS for 400/220kV Bhadla and Bikaner ICTs.

During last 30 days, loading was above N-1 contingency limits of 400/220kV ICTs at Ajmer(RJ), Jodhpur(RJ), Chittorgarh, Merta(RJ) and Bikaner(RJ) when import of Rajasthan was close to their ATC limits.

Delhi

Delhi SLDC is requested to ensure sufficient intrastate generation on bar during winter months, which would help in providing the required MVAR absorption to limit high voltages during winter months
Delhi SLDC is requested to share:

- ATC/TTC limits for low demand period i.e. winter months based on anticipated state generation scenario.
- Plan to control high voltages during winter months
- Status of commissioning of reactors.

Haryana

Haryana SLDC to provide update on:

- ATC/TTC limits for low demand period i.e. winter months based on anticipated state generation scenario.
- Plan to manage loading of 400/220kV Deepalpur and Panipat ICTs.
- Plan to control high voltages during winter months

Uttarakhand

Uttarakhand SLDC representative visited NRLDC to finalise SPS for 400/220kV Kashipur and 220kV CBGanj-Pantnagar line as there were some issues regarding SPS scheme which needed to be discussed.

During last 30 days, loading was above N-1 contingency limits of 400/220kV ICTs at Kashipur when import of Uttarakhand was close to their ATC limits.

Uttarakhand SLDC to provide update.

HP
HP SLDC to provide update on:

- Revised ATC/TTC limits of HP state control area for winter 2022-23.
- Plan to control N-1 compliance of 400/220kV Nallagarh ICTs and high loading of 220kV Nallagarh-Upernangal D/C. Same has also been shared with CTU/CEA in quarterly operational feedback

J&K

Loading of 400/220kV Amagarh ICTs was close to N-1 contingency limits for last 30 days

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.
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

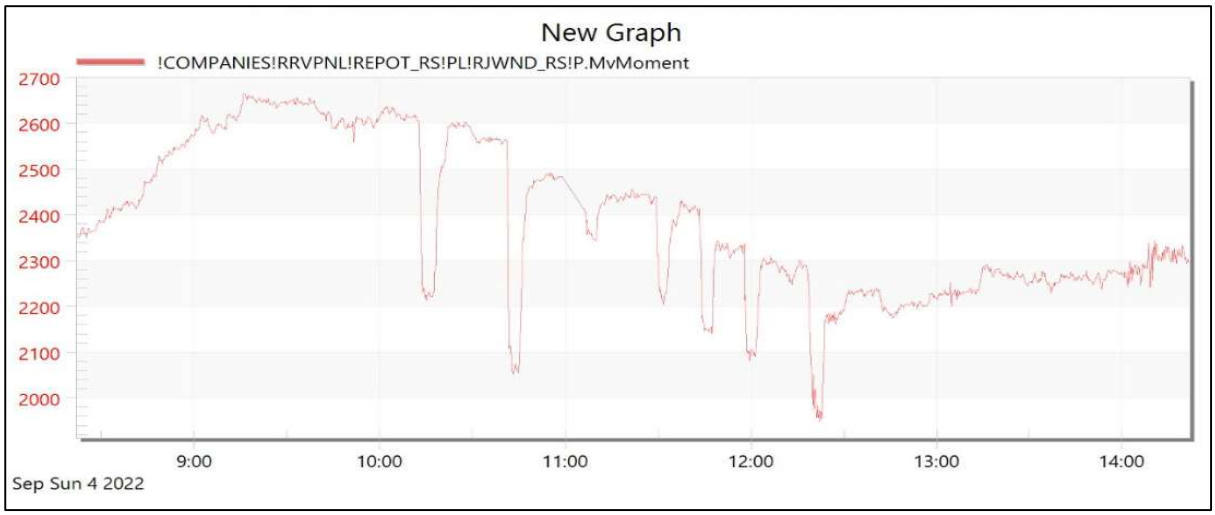
continuously sending emails in real-time for ensuring N-1 compliances as well as restricting schedule till ATC limit and maximizing internal generation. SLDCs need to ensure this during real-time operation.

Members may like to discuss.

17. Grid operation related issues

(i) Wind generation fluctuation in Rajasthan control area

Various dips were observed in Rajasthan wind generation between 10:10 hrs to 12:30 hrs in the tune of 200 MW to 500MW on 4th September 2022. During this time huge variations in voltage were also observed in RE pooling substations of Rajasthan state control area such as Jaisalmer, Ramgarh, Bikaner and Bhadla.



In 199th OCC meeting, Rajasthan SLDC was asked to gather wind speed, voltage profile, MVAR drawl and action taken from RE developers and RE pooling stations. Cut-in & cut-out speed for wind turbines may also be gathered along with actual wind speed data. It was also requested that wind generators may be asked to provide reasons for manually tripping wind turbines as soon as voltages fall below 0.9 p.u. & what issue would be there if machine is made to operate at slightly lower voltage say 0.88 p.u. Rajasthan SLDC agreed to provide update on the above issues.

Members may please discuss.

(ii) MVAR support from generators

During winter season, demand of Northern region is low and high voltages are a common phenomenon predominantly in Punjab, Haryana and Delhi area. Even after several actions being taken by control centers, it is seen that there is persistent high voltage in Northern region. The reactive power absorption by generators becomes an important resource that helps in managing high voltages in the grid. However, even after continuous follow up in OCC meetings, it is seen that MVAR data telemetry is poor/ inaccurate from most of the generating stations. For some of the generators it is seen that there is inadequate reactive power absorption based on their capability curve

especially during night hours. The performance of generators in absorption of reactive power for last 30 days (12 Sep 2022 – 12 Oct 2022) is shown below:

S.No.	Station	Unit No.	Capacity	Geographical location	MVAR capacity as per capability curve (on LV side)	MVAR performance (-) Absorption (+) Generation (HV side data)	Voltage absorption above (in KV)
1	Dadri NTPC	1	490	Delhi-NCR	-147 to 294	-170 to 90	412
		2	490		-147 to 294	-180 to 90	414
2	Singrauli NTPC	1	200	UP	-60 to 120	-25 to 25	406
		2	200		-60 to 120	-30 to 10	405
		3	200		-60 to 120	-20 to 25	409
		4	200		-60 to 120	-40 to 15	406
		5	200		-60 to 120	-30 to 0	405
		6	500		-150 to 300	-80 to 10	402
		7	500		-150 to 300	-60 to 10	402
3	Rihand NTPC	1	500	UP	-150 to 300	-110 to 20	404
		2	500		-150 to 300	-80 to 20	403
		3	500		-150 to 300	-165 to 0	400
		4	500		-150 to 300	-90 to 30	404
4	Kalisindh RS	1	600	Rajasthan	-180 to 360	-120 to 120	Voltage data issue
		2	600		-180 to 360	-120 to 40	
5	Anpara C UP	1	600	UP	-180 to 360	-100 to 60	Voltage data issue
		2	600		-180 to 360	-100 to 60	
6	Talwandi Saboo PB	1	660	Punjab	-198 to 396	-200 to 100	420
		2	660		-198 to 396	-200 to 80	420
		3	660		-198 to 396	-200 to 80	420
7	Kawai RS	1	660	Rajasthan	-198 to 396	-100 to 50	405
		2	660		-198 to 396	-120 to 50	402
8	IGSTPP Jhajjar	1	500	Haryana	-150 to 300	-120 to 100	412
		2	500		-150 to 300	-130 to 100	412
		3	500		-150 to 300	-	-
9	Rajpura (NPL)	1	700	Punjab	-210 to 420	-240 to 80	410
		2	700		-210 to 420	-240 to 80	410
10	MGTPS	1	660	Haryana	-198 to 396	-140 to 80	412
		2	660		-198 to 396	-140 to 80	412

11	Bawana	1	216	Delhi-NCR	-64.8 to 129.6	-	-
		2	216		-64.8 to 129.6	-60 to 40	410
		3	216		-64.8 to 129.6	-70 to 20	410
		4	216		-64.8 to 129.6	-40 to 60	412
		5	253		-75.9 to 151.8	-40 to 60	415
		6	253		-75.9 to 151.8	-40 to 60	415
12	Bara PPGCL	1	660	UP	-198 to 396	-80 to 60	765
		2	660		-198 to 396	-80 to 90	765
		3	660		-198 to 396	-100 to 50	765
13	Lalitpur TPS	1	660	UP	-198 to 396	-60 to 180	775, 785
		2	660		-198 to 396	-30 to 160	775, 785
		3	660		-198 to 396	-90 to 180	760, 780
14	Anpara D UP	1	500	UP	-150 to 300	-130 to 80	765
		2	500		-150 to 300	-140 to 80	765
15	Chhabra TPS	1	250	Rajasthan	-75 to 150	-70 to 20	405
		2	250		-75 to 150	-80 to 20	405
		3	250		-75 to 150	-	-
		4	250		-75 to 150	-	-
		5	660		-198 to 396	-80 to 100	410
		6	660		-198 to 396	-90 to 90	410

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

Members may like to discuss.

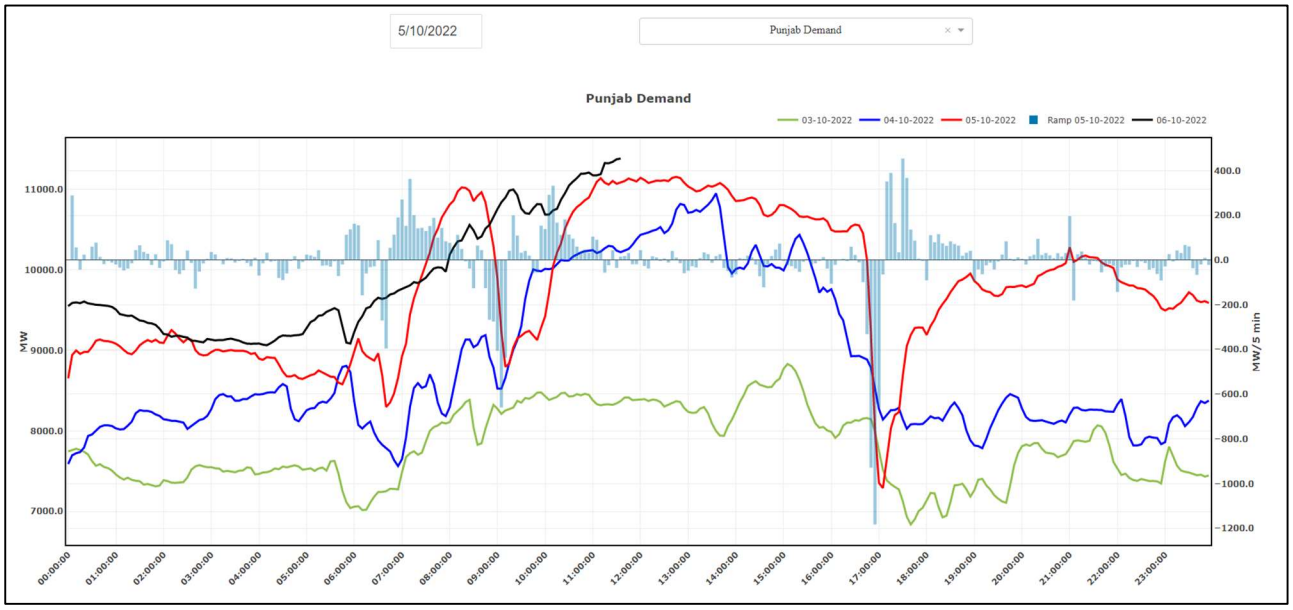
(iii) Large variations in drawal pattern and too much reliance on RTM by states

As per IEGC clause 5.2(j),

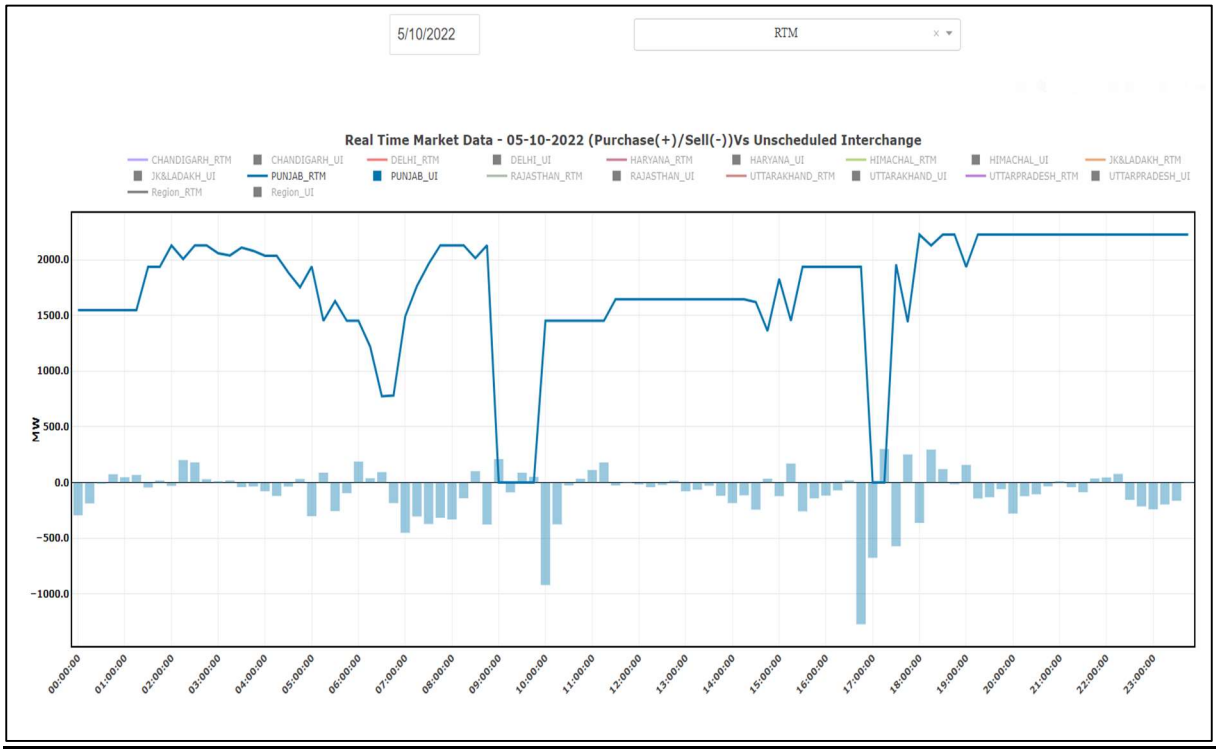
“No User/SEB shall cause a sudden variation in its load by more than one hundred (100 MW) without prior intimation to and consent of the RLDC”.

State control areas are mandated as per IEGC clause 5.3 to balance their portfolio in operational planning as well as in real-time operation as per clause no. 5.4 of IEGC.

It has been observed that Punjab control area has changed its drawl by large quantum during hourly boundaries at 07:00Hrs, 09:00Hrs, 10:00Hrs and 17:00Hrs on 05.10.2022. The trends (5 minutes’ average) of Punjab demand for the period 03.10.2022 to 05.10.2022 is shown below:



The trends of deviations by Punjab and corresponding purchase in RTM for 05.10.2022 is shown below:



It can be seen that Punjab has been depending on RTM (Real Time market) for purchase of power for most part of the day since 01/10/2022. In case of non-availability of power in RTM, Punjab is resorting to load shedding.

The matter has been taken up with Punjab multiple times in the form of operational messages and deviation messages from NRLDC control room. The large deviations causing low/high frequency excursions occurring almost on daily basis are detrimental to the Grid reliability.

During high demand period, the prices in power exchange also increase and at times power is unavailable in RTM (Real time market). Thus too much reliance on RTM could be avoided specially during high demand period. Punjab state control area may explore

to do better portfolio management through purchase of power in DAM, TAM and STOA etc.

Therefore, it is kindly requested that portfolio of Punjab state control area shall be balanced in both operational planning as well as real-time operation by initiating necessary control by state authorities.

In view of the increasing peak demand, declining hydro generation in NR and lack of adequate ramping-up reserves during morning and evening peak hours, it is requested to kindly ensure following measures to restrict deviations from schedule to mitigate low/high frequency excursions:

1. Meticulous load forecasting and operational planning on daily/weekly/monthly basis.
2. Restrict the load variation to the tune of limits specified in IEGC through staggering of load connection/disconnection.
3. Maintain drawal from the Grid as per schedule by proper ramping of on-bar own generation in consonance with the demand variation, to mitigate over-drawal/load shedding.
4. Expedite revival of generating units under reserve shutdown/forced outage and ensure sufficient fuel availability, to maintain adequate spinning reserves.

Members may like to discuss.

(iv) Long outage of transmission elements/ generating units

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

Some of the important elements which are under long outage are shown below:

- 400/220 kV 315 MVA ICT-2 at Mundka (DTL)
- 400kV Bus-2 at Parbati-2 HEP (NHPC)
- 400kV Parbati-3(NHPC)-Sainj(HP) line
- 400kV Bus-2 at Parbati-3 HEP (NHPC)
- 765kV Anpara_D-Unnao(UP) Ckt-1 (UPPTCL)
- 50 MVAR Non-Switchable LR on 400kV Agra-Unnao (UP) Ckt-1 at Agra(UPPTCL)
- 50 MVAR Bus Reactor No 1 at 400KV Moradabad(UPPTCL)

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.

(v) Notification of effective date for GNA Regulation

Hon'ble commission vide notification dated 9th October 2022 has notified that:

(a) The GNA Regulations shall come into operation with effect from 15.10.2022 except the provisions of Regulations 23 to 24, 26 to 36, 37.9, 38, 40, and 43, whose date of commencement shall be notified separately.

(b) Fresh Applications for Connectivity and GNA and their processing and grant under GNA Regulations shall be made effective from a date to be notified separately.

(c) Scheduling and Despatch of electricity shall continue to be based on the quantum of Long-Term Access (LTA), Medium-Term Open Access (MTOA) and Short-Term Open Access (STOA) of each of the Designated ISTS Customers (DICs) and other users of the grid in accordance with the provisions of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, as amended from time to time, till further notification.

(d) STOA shall continue to be granted under the Central Electricity Regulatory Commission (Open Access in inter-State transmission) Regulations, 2008, as amended from time to time and the Detailed Procedures issued thereunder, till further notification.

(e) Billing, Collection and Disbursement of the inter-State Transmission Charges and Losses shall continue to be based on the quantum of LongTerm Access (LTA), Medium-Term Open Access (MTOA) and Short-Term Open Access (STOA) of each of the DICs and other users of the grid in accordance with the provisions of the Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2020 till further notification.

Members may like to discuss.

(vi) 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 were requested to provide update on the agenda point.

Haryana representative stated that the issue is arising due to non-availability of redundant points at BBMB stations, the matter is still pending. For these stations 22 points from BBMB s/s are available, if redundant data is required, nearly 70 downstream points need to be added in the list which may take more time for implementation as DISCOM is also involved.

OCC advised Haryana that meanwhile available data from BBMB stations may be used till integration of other end 70 downstream points is completed. It was also discussed that Haryana may mail detailed issues observed with NRLDC SCADA team for further resolution of issue.

Uttarakhand SLDC representative informed that tender is to be awarded within next two weeks.

In 199 OCC meeting, Haryana SLDC representative agreed to provide update on the agenda through email.

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

Members may please discuss.

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

The following transmission elements were frequently under forced outages during the month of

September 22:

Sr. No	Element Name	Number of Outages	Utility
1	220 KV Nara(UP)-Roorkee(UK) (UP) Ckt-1	4	UP
2	220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt-1	4	UP

The complete details are attached at **Annexure-B.IV**. 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.

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

A total of 21 grid events occurred in the month of September '22 of which **18** are of GD-1 category and **03** are of GI-2 Category. The preliminary report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.V.**

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 1.2 seconds in the event of multiple element tripping at 220kV Sambha, Hiranagar & Sewa. As reported at 17:12hrs, R-ph PT of 132 kV main Bus at Hiranagar blasted and bus bar protection operated. As per PMU at Sambha (PG), R-N fault with delayed clearance of 1280 ms is observed. Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **7** events out of **21** grid events occurred in the month.

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

Members may like to discuss.

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

A total of 8 inter-regional lines tripping occurred in the month of September'22. The list is attached at **Annexure-B.VI.** The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees / ISGSs is in violation of regulation 5.2(r) of IEGC and regulation 15(3) of CEA Grid Standards. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than that mandated by CEA (Grid Standard) Regulations.

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

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

The status of receipt of DR/EL and tripping report of utilities for the month of September'2022 is attached at **Annexure-B.VII**. It is to be noted that as per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement. Also, it is observed that reporting status has been improved from POWERGRID, CPCC2, Delhi, Haryana Uttarakhand and Uttar Pradesh in September'2022 compared to the previous month.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the trippings shall be **uploaded on Web Based Tripping Monitoring System "http://103.7.128.184/Account/Login.aspx"** within 24 hours of the events as per IEGC clause 5.2.r and clause 15.3 of CEA grid

standard. Apart from prints of DR outputs, the corresponding COMTRADE files may please also be submitted in tripping portal / through email.

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

Since 183rd OCC meeting, this point is being 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.VIII.**

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

In 196th 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 called for detail discussion on this matter.

Members may please discuss.

23. Frequency response characteristic:

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

Table:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	End Frequency (in Hz)	*Δf*

1	11-Sept-22	12:22hrs	Region wise FRC for Renewable generation loss of around 3800 MW at Rajasthan renewable generation complex of Northern Region on dated 11th September 2022. The event reported is on 11th Sep 2022, at 12:22 hrs 220kV Bhadla – CSP Jodhpur tripped due to phase to phase fault. During the fault, approximate 3800 MW of solar generation connected to Fatehgarh & Bhadla generation complex reduced due to low bus voltage as reported by Solar Stations. During the incident, four number of 765kV lines emanating from solar complex also tripped. The loss of 3800 MW generation loss has been considered for FRC Calculation.	50.05	49.74	-0.31
2	17-Sept-22	10:14hrs	At 10:14Hrs on Dated 17h-September-2022, As reported, R-phase CT blasted for 220kV Fatehgarh2-AHEJ2L ckt at Fatehgarh2 end. This resulted in tripping of aforementioned line. Subsequent to this, 220kV Fatehgarh2-AHEJ3L tripped on over voltage from AHEJ3L end. Hence, generation loss of 1566 MW has been taken for FRC calculation.	50.02	49.98	-.04

Status of Data received till date:

Status of Field Data received of FRC of Grid event occurred at Rajasthan RE complex at 12:22 Hrs on 11.09.2022			
Data Received from		Data Not Received from	
Koteshwar HEP	BBMB	Uttarakhand	APCPL Jhajjar
Rihand NTPC	Tanda NTPC	Haryana	Rampur HEP
Rosa Reliance	Dadri NTPC	UP	Unchhahar NTPC
	HP	Punjab	Karcham HEP
		Rajasthan	AD Hydro HEP
		N. Jhakri HEP	Singrauli NTPC
		Rampur HEP	NHPC

Status of Field Data received of FRC of Grid event occurred at Rajasthan RE complex at 10:14 Hrs on 17.09.2022			
Data Received from		Data Not Received from	
Koteshwar HEP	BBMB	Uttarakhand	APCPL Jhajjar
Rihand NTPC	Tanda NTPC	Haryana	Rampur HEP
Tehri HEP	AD Hydro HEP	UP	Unchhahar NTPC
N. Jhakri HEP		Punjab	Karcham HEP
		Rajasthan	Singrauli NTPC
		Rampur HEP	NHPC
		Dadri NTPC	Rosa Reliance
		HP	

PFR as per NRLDC SCADA data and generators field data:

Primary Frequency Response by Generators during Grid Event occurred at Rajasthan RE complex at 12:22 Hrs on 11.09.2022

Sr. No	Generating stations	FRC as per NRLDC SCADA data (in %)	FRC as per generator data (in %)	
			If no upper dead band	If upper dead band of 5%
1	Dadri TPS Stage-1 Unit-1	6	18	41.67
2	Dadri TPS Stage-1 Unit-2		13	31
3	Dadri TPS Stage-1 Unit-3		21	49
4	Dadri TPS Stage-1 Unit-4		Data suspected	
5	Dadri TPS Stage-2 Unit-1	57	49	114
6	Dadri TPS Stage-2 Unit-2		43	98
7	Koteshwar HEP	9	10.4	24.9
8	Rihand Unit-3	31	50	115
9	Rihand Unit-4		28	64
10	Rihand Unit-5	24	20	46
11	Rihand Unit-6		25	58
12	Rosa Unit-1	22	30	68
13	Rosa Unit-2		25	56
14	Rosa Unit-3		25	56
15	Rosa Unit-4		19	44

Primary Frequency Response by Generators during Grid Event occurred at Rajasthan RE complex at 10:14 Hrs on 17.09.2022

Sr. No	Generating stations	FRC as per NRLDC SCADA data (in %)	FRC as per generator data (in %)
1	Nathpa Jhakri Unit-1	100	73
2	Nathpa Jhakri Unit-2		50
3	Nathpa Jhakri Unit-4		74
4	Nathpa Jhakri Unit-6		74
5	Koteshwar HEP Unit-1	43	-22
6	Koteshwar HEP Unit-3		218
7	Koteshwar HEP Unit-4		77
8	Rihand Unit-1	-64	72
9	Rihand Unit-3	-20	140
10	Rihand Unit-4		-26
11	Rihand Unit-5	0	126
12	Rihand Unit-6		24
13	Tehri Unit-1	55	40
14	Tehri Unit-2		130
15	AD Hydro Unit-1	189	219

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.

24. Mock black start exercises in NR:

As per Indian Electricity Grid Code (IEGC) clause 5.8(b)

"*Detailed plans and procedures for restoration after partial/total blackout of each user's/STU/CTU system within a Region, will be finalized by the concerned user's/STU/CTU in coordination with the RLDC. The procedure will be reviewed, confirmed and/or revised once every subsequent year. Mock trial runs of the procedure for different subsystems shall be carried out by the users/CTU/STU at least once every six months under intimation to the RLDC*".

Mock Black-start exercise of power stations therefore needs to be carried out in-order to ensure healthiness of black start facility.

The summary of last conducted mock black start exercise of ISGS hydro & gas stations during 2020-21 & 2021-22 is tabulated below:

Hydro Power Stations:

Name of stations	**Last conducted exercise date**	**Remark**
Uri-I, II HEP, Lower Jhelum HEP, Upper Sindh and Kishenganga	–	
Dhauliganga	28th Dec 2021	Exercise carried out successfully
Bairasiul	04th Dec 2020	
Sewa-2	29th May 2022	
N. Jhakri and Rampur	17th Dec 2019	
Karcham and Baspa	29th Dec 2021	Exercise was partially successful
Budhil	–	
Parbati-3 and Sainj	22nd Dec 2020	Black start of only Parbati-3 was carried out successfully. Sainj to explore blackstart capability.
Salal	-	
Chamera-3	-	
Kishenganga	-	
Koteshwar	19th Jan 2022	Exercise carried out successfully
Chamera-1 and Chamera-2	08th Dec 2020	
Malana-2, AD Hydro and Phozal	08th Jan 2021	

Tehri	12th Jan 2022	
Koldam	22nd Jan 2021	Partially successful.

Gas Power Stations:

Name of stations	Last conducted exercise date	Remark
Anta GPS	09th Feb 2021 (with load) 01st Feb 2022 (without load)	Exercise carried out successfully
Auraiya GPS	-	
Dadri GPS	28th Jan 2022 (without load)	Exercise carried out successfully

The winter months are off peak hydro period and therefore good time to carry out such exercises. Therefore, the schedule of mock exercise dates for different hydro & Gas power station need to be finalized. The power stations may propose the tentative date for mock black start exercise of their generating units. Power stations may confirm and inform to all the concerned persons of control centre/ substations to facilitate the exercise.

Hydro Power Stations:

Name of stations	Tentative Date for Mock Black start exercise (to be proposed by power plants)
*Uri-I, II HEP, Lower Jhelum HEP, Upper Sindh and Kishenganga	
Dhauliganga	
*Bairasiul	
Sewa-2	
*N. Jhakri and Rampur	
Karcham and Baspa	
*Budhil	
*Parbati-3 and Sainj	
*Salal	
*Chamera-3	
*Kishenganga	
Koteshwar	11.01.2023 (May be preponed)
*Chamera-1 and Chamera-2	
*Malana-2, AD Hydro and Phozal	12.12.2022

Tehri	10.01.2023 (May be preponed)
*Koldam	

Mock Black start exercise not carried out during Year 2021-22

Gas Power Stations:

Name of stations	Tentative Date for Mock Black start exercise (to be proposed by power plants)
Anta GPS	
*Auraiya GPS	
Dadri GPS	

Mock Black start exercise not carried out during Year 2021-22

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

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

26		Chilla	4x36
27		Maneri Bhali-I&II	3x30+4x76
28	Delhi	IP Extn GTs	6x30+3x30
29		Pragati GPS	2x104.6+1x121.2
30		Rithala	3x36
31	Haryana	Faridabad GPS	2x137.75+1x156.07

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

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

Reactive Power Management document for Northern region has been revised on 31st Dec 2021 & updated document link is as below:

https://nrldc.in/download/nr-reactive-power-management-2022/.

Document is password protected and password was already informed to all the NR constituents through letter dated 31st Dec 2021.

Constituents are requested to provide the feedback, suggestion and updated information by 30th Nov 2022.

System restoration procedure document for Northern region has been revised on 31stJan 2022 & updated document link is as below:

https://nrldc.in/wp-content/uploads/2022/01/System-Restoration-Procedure_NR_2022.pdf

Document is password protected and for password request can be sent to nrldcso2@gmail.com Constituents are requested to go through the document and provide any modification/addition in respect of their system. SLDC/Generating utilities are requested to kindly update and share the restoration procedure in respect of their state/generating station.

Constituents are requested to provide the feedback, suggestion and updated information by 31st Dec 2022.

All the NR constituent may please go through these document and provide the feedback, suggestion if any. All the state SLDCs are also requested to kindly prepare these documents for their own control area.

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 — Aug-2022
◎ HARYANA — May-2022
◎ HP — Jan-2022
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jul-2022
◎ RAJASTHAN — Aug-2022
◎ UP — Sep-2022
◎ UTTARAKHAND — Sep-2022
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">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 — Jun-2022
◎ HARYANA — Sep-2022
◎ HP — Aug-2022
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jun-2022
◎ RAJASTHAN — Jun-2022
◎ UP — Jun-2022
◎ UTTARAKHAND — Sep-2022
◎ BBMB — Sep-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>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</td></tr>
</table>

			◎	J&K and LADAKH	Not increased
			◎	PUNJAB	Increased
			◎	RAJASTHAN	Increased
			◎	UP	Increased
			◎	UTTARAKHAND	Increased
			◎	BBMB	Increased
			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	Sep-2022
			◎	PUNJAB	Sep-2022
			◎	RAJASTHAN	Sep-2022
			◎	UP	Sep-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. Likely completion schedule is 31.12.2022.
			◎	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: Nov'22 2022
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under final stage inspection. 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 final stage inspection. 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	1x25 MVAR Reactor at Akal has been commissioned on dated 25th July’ 2022.
xii	RAJASTHAN	Bikaner	1x25 MVAr	Erection work of 1x25 MVAR Reactors at Bikaner and Suratgarh completed and testing work is pending. The same are likely to be commissioned in Aug / Sept 2022.
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	Erection work of 1x25 MVAR Reactors at Bikaner and Suratgarh completed and testing work is pending. The same are likely to be commissioned in Aug / Sept 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	Commissioned	Commisioned date: 09.06.2022. Updated in 198th 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: 6 Unutilized: 2	• 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	Mar'23	Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
13	400/220kV Kadarpur Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both circuits of 220 KV Pali - Sector 56 D/C line at Kadarpur along with augmentation of existing conductor from 220 KV Sector-56 to LILO point with 0.4 sq inch AL-59 conductor.	Mar'23	Updated in 197th OCC by HVPNL
				• 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: 2 Unutilized: 4	• 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: 2 Unutilized: 4 Under Implementation:2	• Prithla - Harfali 220kV D/c line with LILO of one ckt at Meerpur Kurali	Commissioned	Commisioned date: 31.12.2021. Updated in 198th OCC by HVPNL
				• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	-	HVPNL to update the status
				• 220kV D/C for Sector78, Faridabad	02.03.2023	Updated in 198th OCC by HVPNL
				• Prithla - Sector 89 Faridabad 220kV D/c line	31.03.2024	Under Implementation (Mar'24). Updated in 198th OCC by HVPNL
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	May'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.
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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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	Oct'22	Updated in 198th 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
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	May'23	Route survey/tender under process. Work expected to be completed by May 2023. Updated in 198th OCC by PSTCL.
				• 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)	May'23	Route survey/tender under process. Work expected to be completed by May 2023. Updated in 198th OCC by PSTCL.
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, within 10 day tentative charging updated in 198th OCC by UPPTCL.
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• Network to be planned for 2 bays.	Mar'24 and July'24	Updated in 198th OCC by HVPNL
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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	One bay 220 kV Manesar (PG)-Panchgaon ckt commissioned on 05.09.2022
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	Oct'22	Saharanpur(PG)-Devband D/c line expected energization date Oct'22 updated by UPPTCL in 199th 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	Mar'23	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work expected to be completed by March 2023.Updated in 198th OCC by PSTCL.
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	-	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is not ready.Updated in 198th OCC by HPPTCL
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	May'24	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.

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

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

FGD Status

Updated status of FGD related data submission

NTPC (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 (15.09.2022)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (15.09.2022)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (12.10.2022)
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 (14.09.2022)
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: 31-08-2022), KOTA TPS U#6 (Target: 31-08-2022), KOTA TPS U#7 (Target: 31-08-2022), SURATGARH TPS U#1 (Target: 31-12-2026), SURATGARH TPS U#2 (Target: 31-12-2026), SURATGARH TPS U#3 (Target: 31-12-2026), SURATGARH TPS U#4 (Target: 31-12-2026), SURATGARH TPS U#5 (Target: 31-12-2026), SURATGARH TPS U#6 (Target: 31-12-2026), SURATGARH SCTPS U#7 (Target: 28-02-2025), SURATGARH SCTPS U#8 (Target: 28-02-2025), CHHABRA TPP U#1 (Target: 31-12-2026), CHHABRA TPP U#2 (Target: 31-12-2026), CHHABRA TPP U#3 (Target: 31-12-2026), CHHABRA TPP U#4 (Target: 31-12-2026), CHHABRA SCPP U#5 (Target: 28-02-2025), CHHABRA SCPP U#6 (Target: 28-02-2025), KALISINDH TPS U#1 (Target: 28-02-2025), KALISINDH TPS U#2 (Target: 28-02-2025)
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 submitted revised islanding scheme on 20.07.2022 which has been deliberated on the meeting held on 14.09.2022 and 07.10.2022. UP has been requested to submit revised islanding scheme as per deliberation in the meetings.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Newly Proposed	UP has placed offer to CPRI for dynamic study in July, 2022. The estimated time of study is 5 months from date of acceptance.		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Newly Proposed	Scheme/Study was approved in 195th OCC meeting held on 24.05.2022. The same was discussed in 56th NRPC meeting held on 29th july, 2022 and RVPN has been requested to submit revised proposal before OCC.	-	-		-	-	-	-	-	-	-	-
4	Patiala-Nabha Power Rajpura IS	Punjab	Newly Proposed	Punjab has submitted islanding scheme on 12.07.2022 which has been examined. Punjab has been requested for clarification on few points. However, reply is awaited.		-		-	-	-	-	-	-	-	-
5	Pathankot-RSD IS	Punjab	Newly Proposed	Punjab has submitted islanding scheme on 12.07.2022 which has been examined. Punjab has been requested for clarification on few points. However, reply is awaited.		-		-	-	-	-	-	-	-	-
6	Talwandi Sabo IS	Punjab	Newly Proposed	Punjab has submitted islanding scheme on 12.07.2022 which has been examined. Punjab has been requested for clarification on few points. However, reply is awaited. However, tentative timeline intimated by Punjab is 2 years to implement TSPL islanding Schemes as some changes in downstream network is under planning phase.		-		-	-	-	-	-	-	-	-
7	Dehradun IS	Uttarakhand	Newly Proposed	Uttarakhand has submitted feasibility report of Dehradun IS vide letter dated 07.10.2022.		-	-	-	-	-	-	-	-	-	-
8	Jammu-Salal IS	J &K	Under Discussion	No proposal submitted by J&K.		-	-	-	-	-	-	-	-	-	-
9	Suratgarh IS	Rajasthan	Under Discussion	Scheme/Study was approved in 195th OCC meeting held on 24.05.2022. The same was discussed in 56th NRPC meeting held on 29th july, 2022 and RVPN has submitted revised proposal vide letter dated 16.09.2022.	-	-		-	-	-	-	-	-	-	-
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 under process.											
14	Shimla-Solan IS	HP	Newly Proposed	Scheme has been discussed on 15/07/2022. Finalization of scheme is under process.											
13	Butari-Jamsher-Verpal IS	Punjab	Under Discussion	No proposal submitted by Punjab.		-	-	-	-	-	-	-	-	-	-
14	Kargil-Ladakh IS	Ladakh	Under Discussion	No proposal submitted by J&K.		-	-	-	-	-	-	-	-	-	-

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/106/02/2022/ 9273-9275 दिनांक: 12.10.2022

विषय: Minutes of the meeting held on 07.10.2022 for discussing Implementation of Unchahar Islanding Scheme-reg

Please find attached minutes of the meeting held on 07.10.2022 at 11:00 hrs (through VC) for discussing Implementation of Unchahar Islanding Scheme.

संलग्नक:यथोपरि

12.10.2022
(संतोष कुमार)
अधीक्षण अभियंता (प्रचालन)

सेवा में,

1. मुख्य अभियंता, उत्तर प्रदेश राज्य भार प्रेषण केंद्र, गोमती नगर, लखनऊ, उत्तर प्रदेश (cecs@upsldc.org)
2. AGM, एनपीटीसी ऊंचाहार (vishnumurthy@ntpc.co.in)
3. सी.जी.एम इन-चार्ज, उत्तर क्षेत्रीय भार प्रेषण केंद्र, नई दिल्ली (rk.porwal@posoco.in)

18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय, नई दिल्ली- 110016 फोन:011-26513265 ई-मेल: seo -nrpc@nic.in वेबसाईट: www.nrpc.gov.in
18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016 Phone: 011-26513265 e- mail: seo-nrpc@nic.in Website: www.nrpc.gov.in

Minutes of the meeting held on 07.10.2022 for discussing Implementation of Unchahar Islanding Scheme

MS, NRPC welcomed the participants from UP SLDC, UPPTCL, NTPC and NRLDC.

2. EE (P & SS), NRPC apprised that UP SLDC has submitted generation and load details which was deliberated in 199th OCC meeting. He requested UP to apprise the conclusions arrived till the date.

3. UPSLDC informed that generation duration curve was plotted for last FY (April,21 to Sept,21 and Oct,21 to March,22) and it has been observed that generation (of 5 units of 210 MW) was around 600 MW for more than 50% of time. It was suggested that all 05 no. of units may be considered so that average generation remains around 600 MW.

4. Further, UPSLDC stated that average load in the island may be considered as 540 MW. This figure has been arrived on basis of average of summer/winter peaks and off-peak values.

5. NRLDC suggested that possibility of automatically connecting load at higher frequency may be explored which is done in Mumbai islanding scheme. It was also suggested that grading may be done for load shedding in island based on frequency. However, it was deliberated that this may require adequate infrastructure for communication which may not be possible at present condition.

6. UPSLDC also highlighted that charging a dead bus/feeder on automatic command may not be safe.

7. MS, NRPC advised that at present islanding scheme may be finalized considering load generation balance (load~90% of gen.). As per SOP issued by NPC Division, CEA, islanding schemes may be reviewed on half yearly basis. Once, present scheme will be implemented, UPSLDC may propose required modifications in the scheme on the basis of SCADA mapping also. NTPC, UPSLDC and NRLDC agreed for the same.

8. UP SLDC was requested to submit updated proposal of islanding scheme including steady state study analysis, load, UFR, df/dt feeders as per agreed load and generation in island so that same may be discussed as an agenda in 200th OCC.

9. Timeline for implementation was asked from UPPTCL. UPPTCL stated that UFR, df/dt relays are already installed and operational at 90 % (tentatively) of location and agreed for submission of assessment report (for work required for implementation and timeline for implementation) by 31st October, 2022.

10. After detailed discussion as mentioned above, followings were decided:

- **UP SLDC to submit updated proposal of islanding scheme including steady state study analysis, load, UFR, df/dt feeders which is to be discussed as agenda in 200th OCC meeting.**
- **UPPTCL to submit assessment report (for work required for**

implementation and timeline for implementation) by 31st October, 2022

Meeting ended with vote of thanks.

*****

पावरट्रॉंसमिशनकारपोरेशनऑफउत्तराखण्ड लि0
(उत्तराखण्डसरकारका उपक्रम)
मुख्य अभियन्ता, प्रान्तीय भारनिस्तारणकेन्द्रकार्यालय
विद्युतभवन, नजदीक–आई0एस0बी0टी0 क्रासिंग, सहारनपुररोड़, माजरा, देहरादून–248002
दूरभाश नं0 0135–2645768फैक्स नं0 0135–2645758email:- sldc1@rediffmail.com

Letter No. 913 **/SLDC/CE L-1** **Dated :** 07 **/10/2022**

Superintending Engineer(Operation)
Northern Regional Power Committee
18A, Saheed Jeet Sigh Marg, Katwaria Sarai,
New Delhi-110016.

Sub: - Regarding status on feasibility of Dehradun as proposed Islanding Scheme.

In reference to above mentioned subject, kindly find enclosed herewith feasibility study report of Dehradun as proposed islanding scheme as desired in reference to 198th OCC meeting of NRPC for kind information and further necessary action.
Encls: As above.

(Rajiv Gupta)
Chief Engineer L-1 (SLDC)

Cc:-
1. Director (Projects), PTCUL, Dehradun.
2. Superintending Engineer, SLDC, PTCUL, Dehradun.

Feasibilty study Report for Dehradun as a proposed Islanding scheme

Executive Summary

1.0 Introduction

Islanding of system is defined as isolation of critical and super critical feeders and supply of energy only to these feeders in case of major disturbance in the grid or in case of any type of transmission constraints.

It was also reiterated during 47th NRPC 49th NRPC meeting dated 23.09.2022 that Hon'ble minister of State for Power and New & Renewable Energy chaired meeting on 28.12.2020 to review Islanding scheme in the country and following were the deliberation from the meeting:

a) Islanding scheme shall be designed for all major cities of the country .The proposal of establishment of power plant in/around such city may also submitted for consideration to the ministry

b) All the strategic and essential loads should be covered in the Islanding Scheme. For the finalization of strategic loads, the Ministry of Defence may also be consulted.

c) Generating station which is near to essential loads shall be given priority in designing the islanding scheme.

d) All concerned entities to ensure the functionality of AUFLS and df/DT relays at all points of time all concerned entities to ensure the functionality of AUFLS and df/DT relays at all points of time.

Thereafter, series of meetings were held amongst NR constituents during Apr-Aug'21 to review the existing Islanding Schemes and expedite the implementation of newly proposed Schemes. A special TCC meeting for NR was also convened on 15.06.2021, wherein Uttarakhand was asked to submit the timelines for implementing Dehradun islanding scheme.

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 including Operational Coordination Committee(OCC). It was highlighted in meetings that PSDF funding for implementation of Islanding scheme shall as per meeting chaired by Hon'ble Cabinet minister (Power,New & renewable Energy)on 07.10.2021 and states were requested to submit the DPR for the implementation of Islanding scheme.

Uttarakhand asserted in the 190th OCC meeting that major hydro stations e.g. Chibro, Khodri etc at Dehradun Region in Yamuna valley are non-must run and peaking stations and the proposed Dehradun Islanding scheme appears to be infeasible. 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.

NRPC desired during meeting that 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. Further during 198th OCC meeting, NRPC Sectt. representative reiterated that a report may kindly be submitted to OCC forum after analyzing the past generation and demand data pertaining to the proposed scheme. Based on the report, further decision would be taken. Based on that the preliminary feasibility report has been prepared.

2.0 GENERAL PHILOSOPHY ON FORMATION OF ISLANDS

As per clause 10 of the Central Electricity Authority (Grid standards), Regulations 2010, the regional power Committee shall prepare Islanding schemes for separation of system with a view to save healthy system from total collapse in case of grid disturbance.

Islanding Schemes may be designed:

- For survival of some predefined generations and loads at the time of grid disturbance to avoid total blackout and quicker restoration of failed grid.
- For major cities having loads of VIP areas, Defense, Space, Airport, Metro, ports and important industries etc.

Islanding scheme is to be formed with anticipated loads-generation balance and with tripping of predetermined feeders/ICTS/generators. Islanding can take place at any time, monitoring of the following vital parameters have a significant role in successful Island formation

1) Anticipated /Actual Generation within the electrical boundary of the island.

2) Anticipated /actual loads within the electrical boundary of the island.

3) Voltage, frequency & Power flows along the peripheral lines which are required to be tripped to form the island and these parameters are to be monitored in real time basis in Control room of SLDC (installation of PMU at suitable locations if required)

The Essential loads are classified into two categories

a) Critical loads: consist of loads of hospitals, airport, railway, important industries

b) Super critical loads: consist of loads of defense areas, Raj Bhawan, residence of VIPs, Parliament house

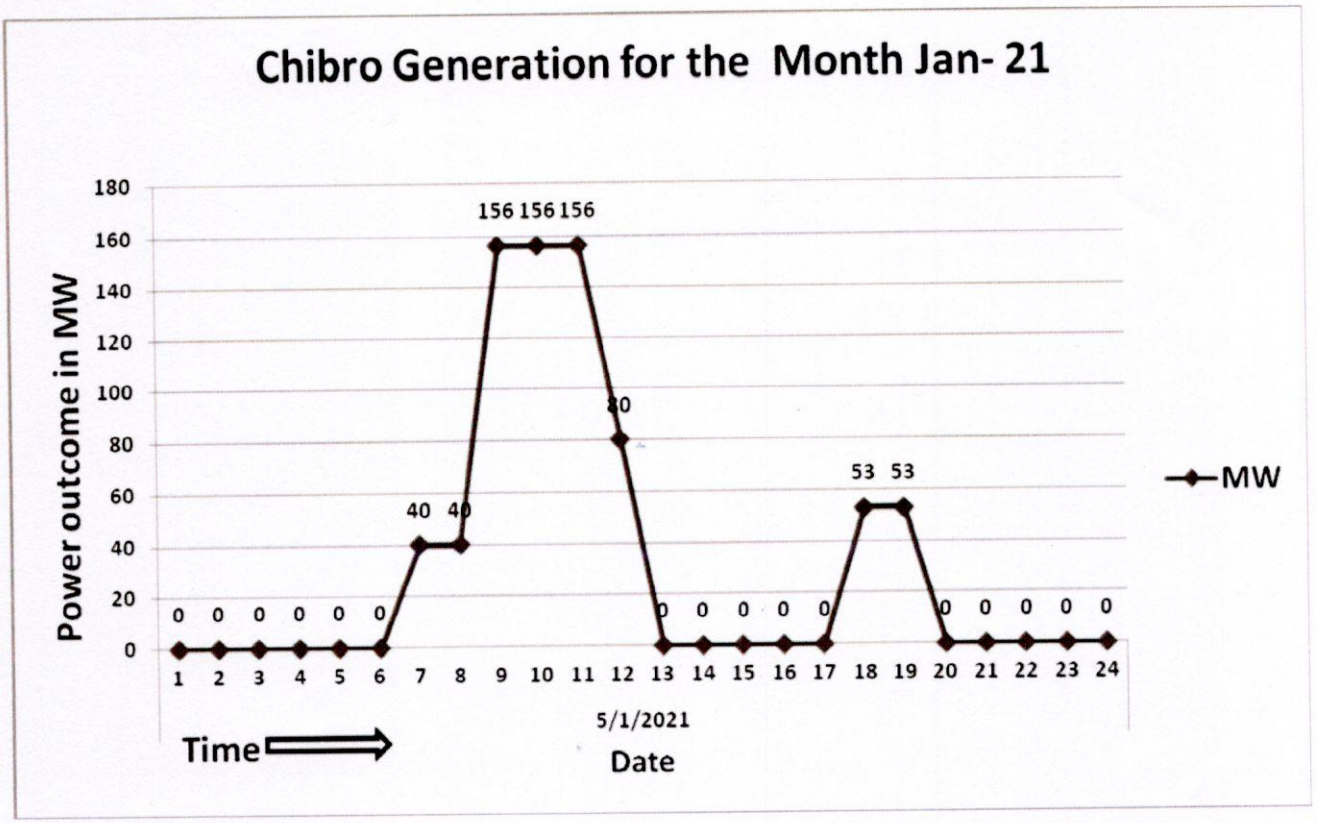
3.0 Preliminary Technical Feasibility

Proposed Islanding Scheme FOR Dehradun:

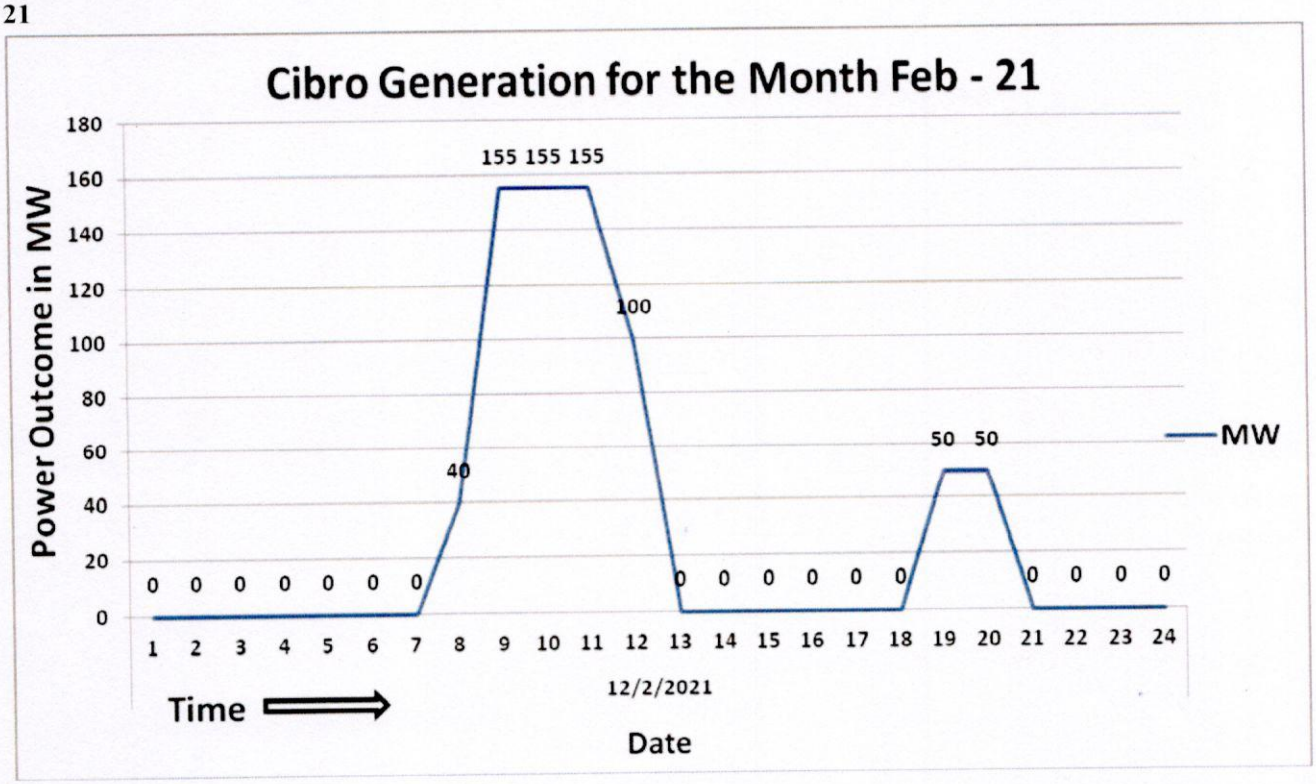
Based on the hourly reading register in SLDC, hydro generation of Chibro and Khodri power house (non- must run) of UJVN ltd is studied and is observed that generation is restricted with a minimum load of 40MW to 07-8 months.

The trend of hourly generation report of Chibro power house (monthwise) is illustrated below in the form of graph.

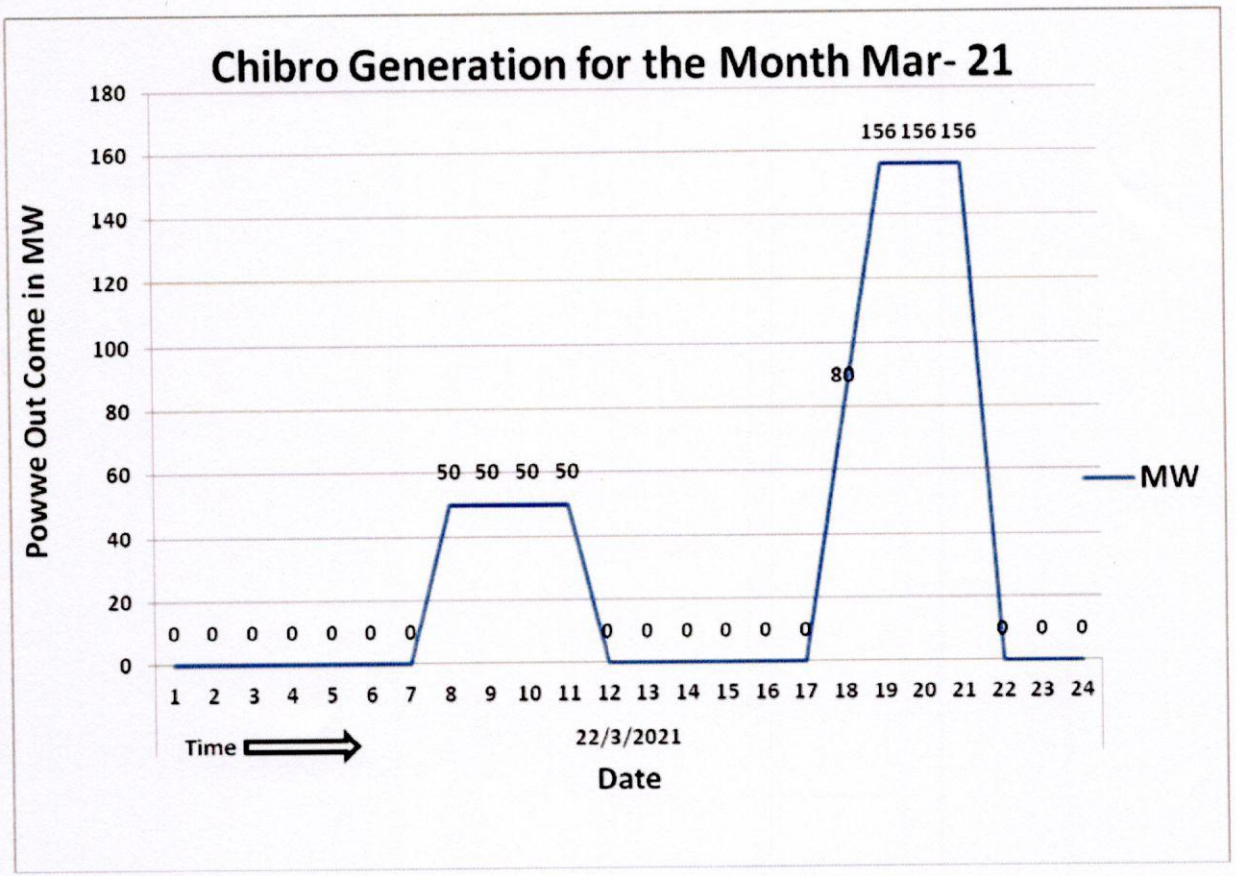
January- 21



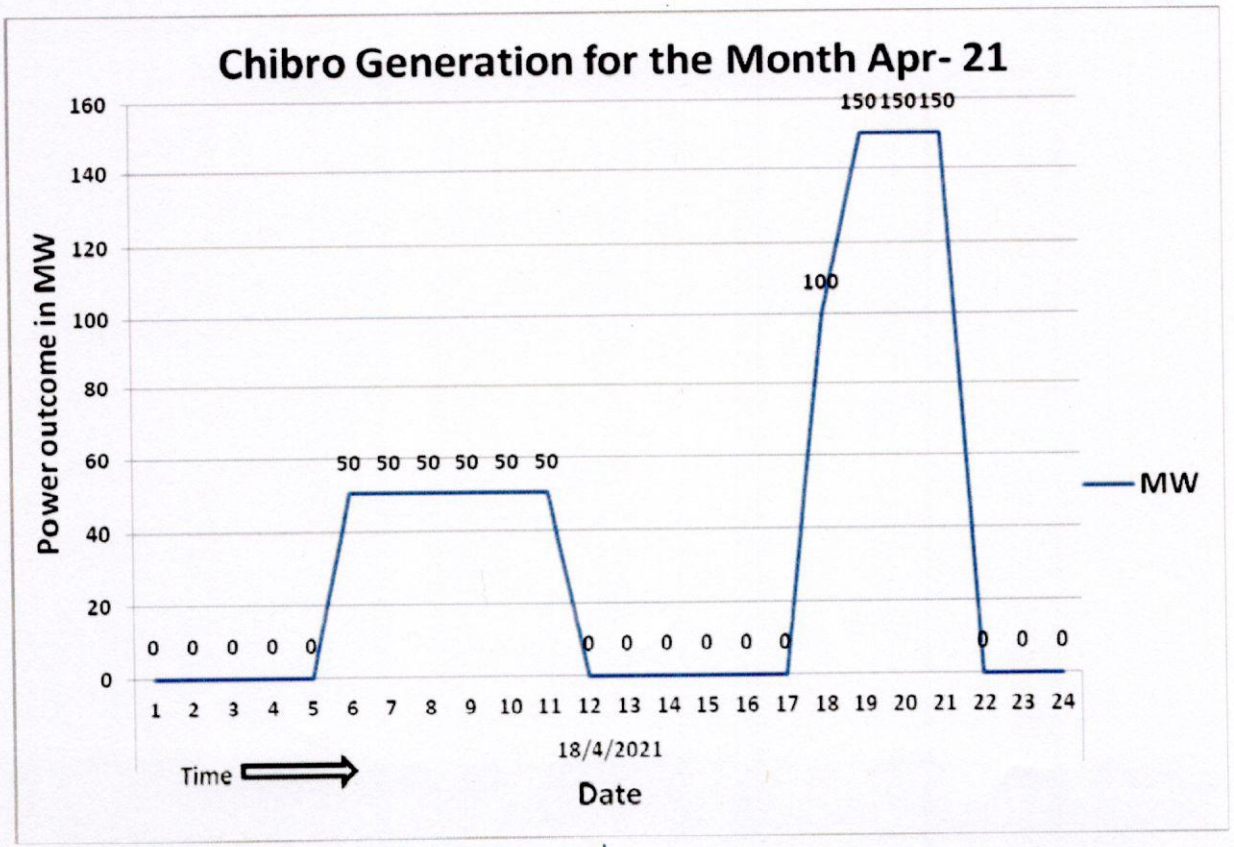
February- 21



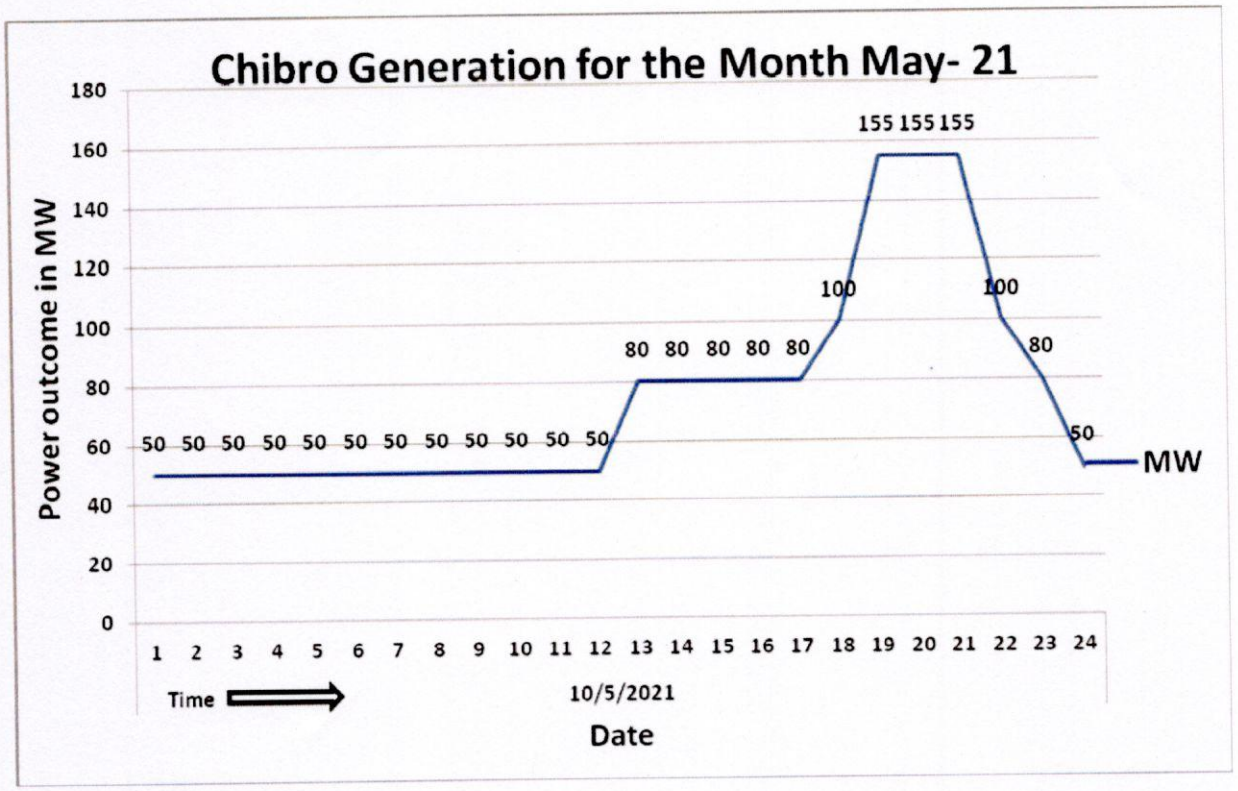
March-21



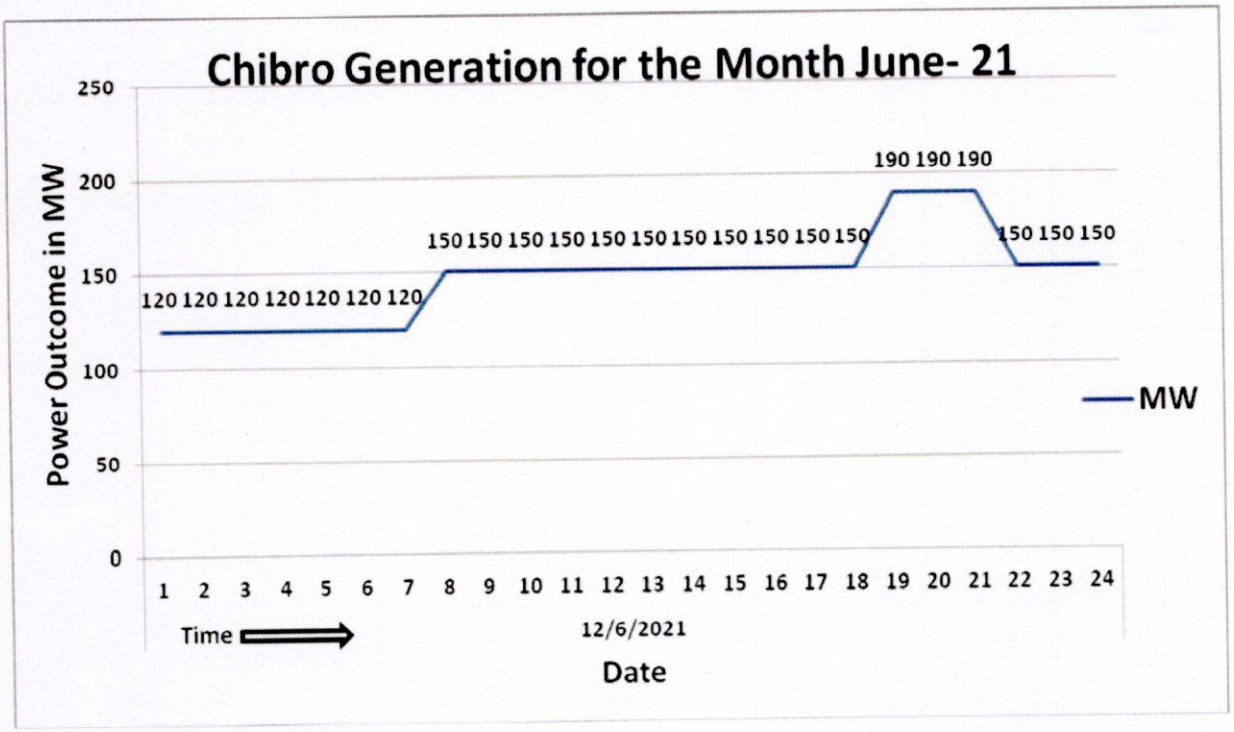
April- 21



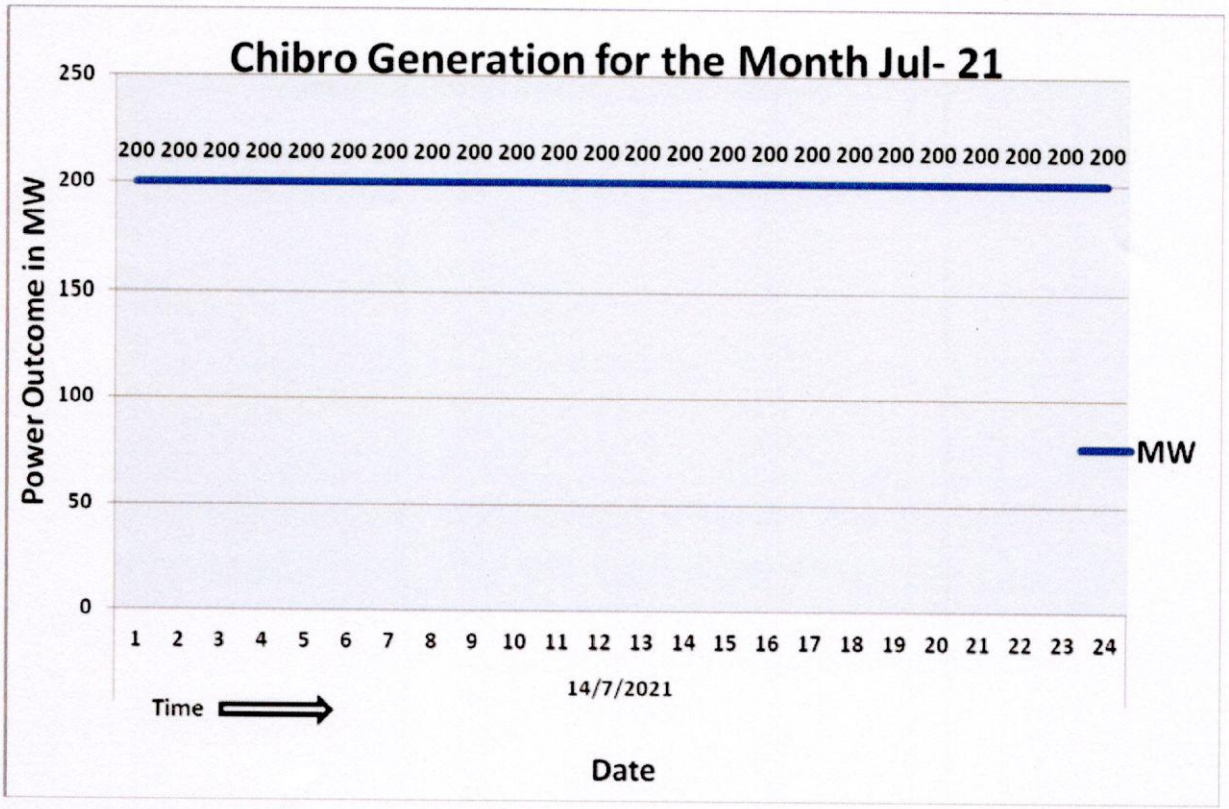
May- 21



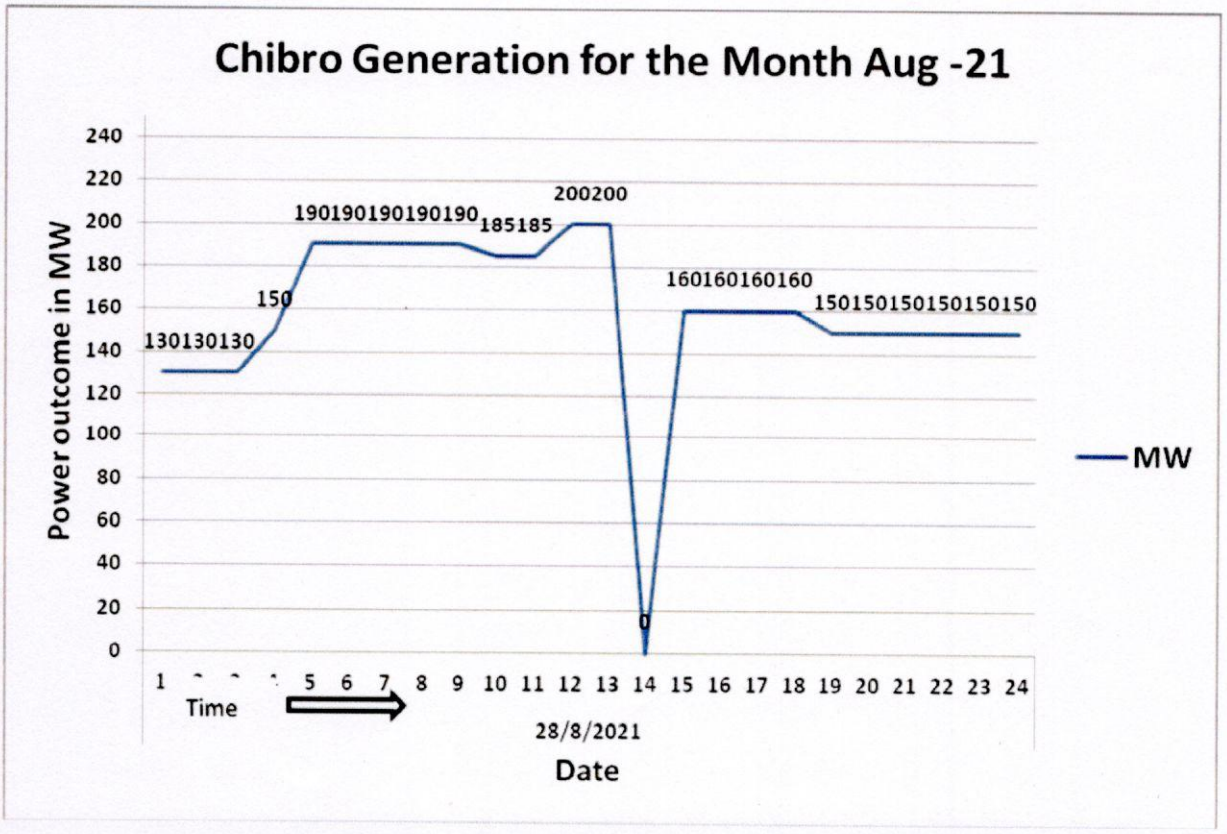
June- 21



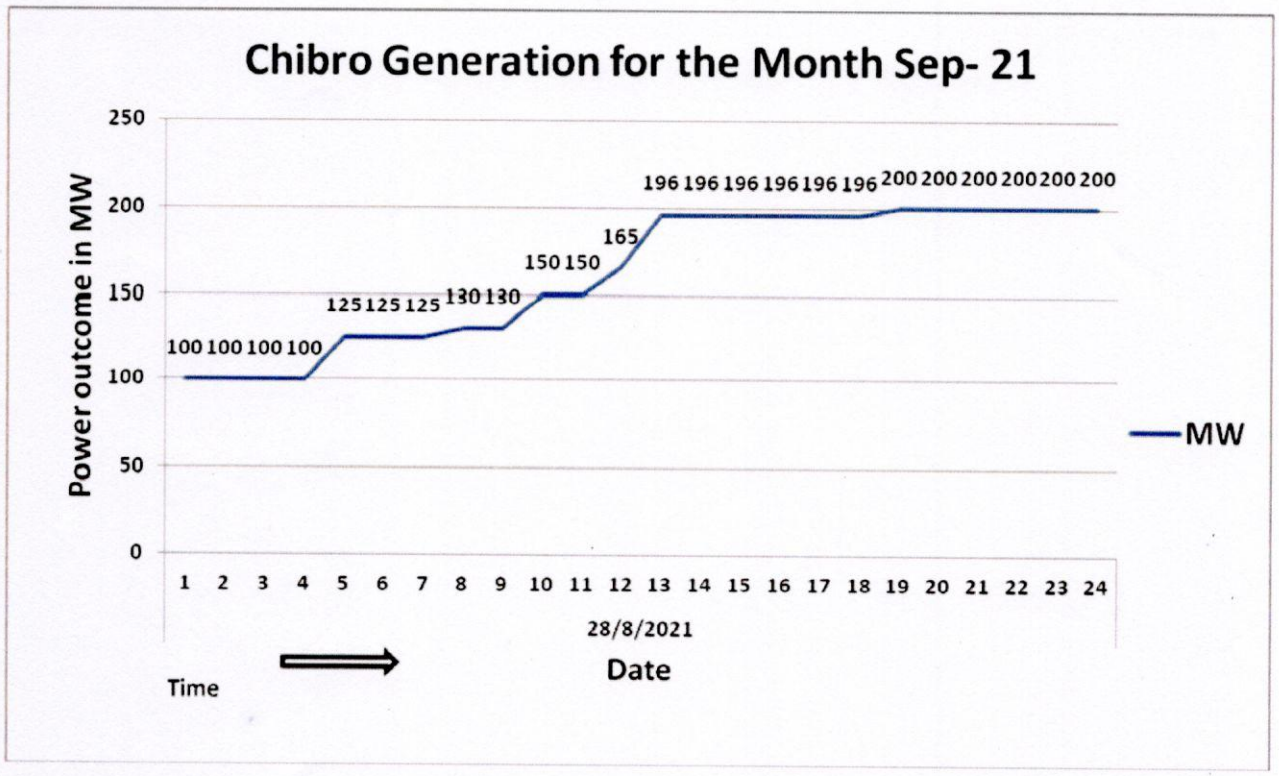
July-21



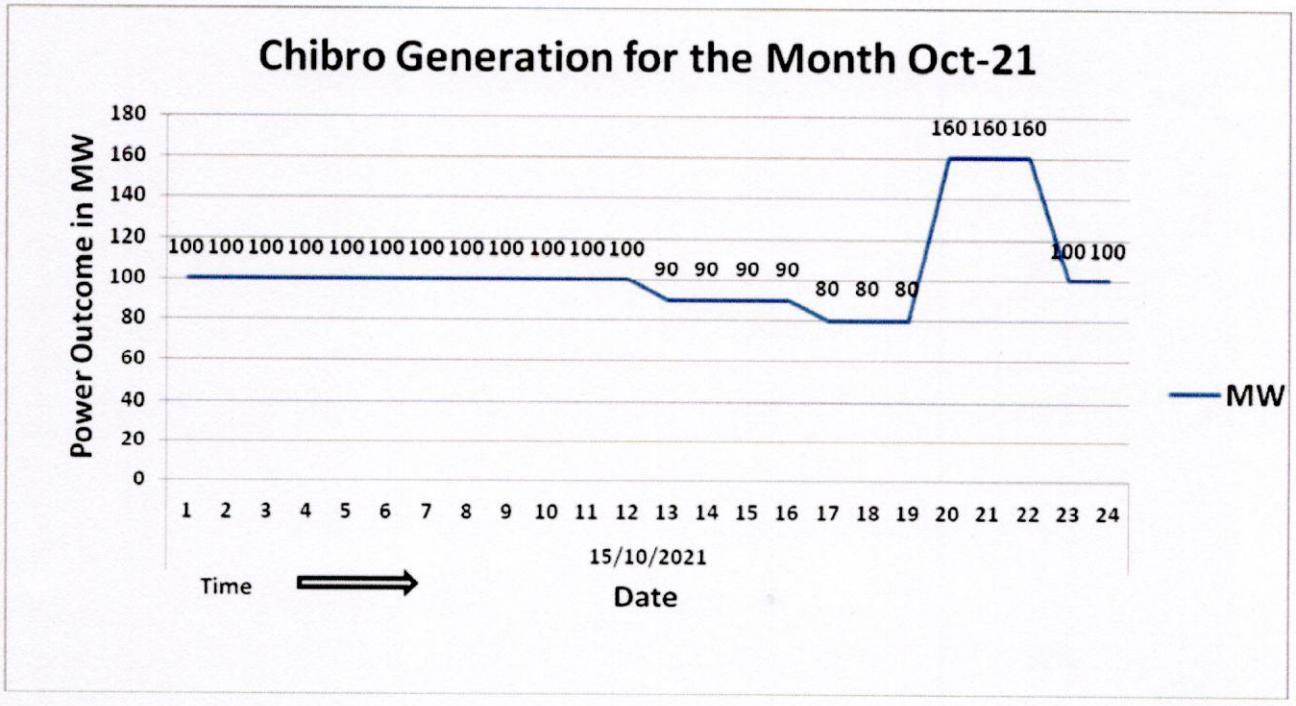
August-21



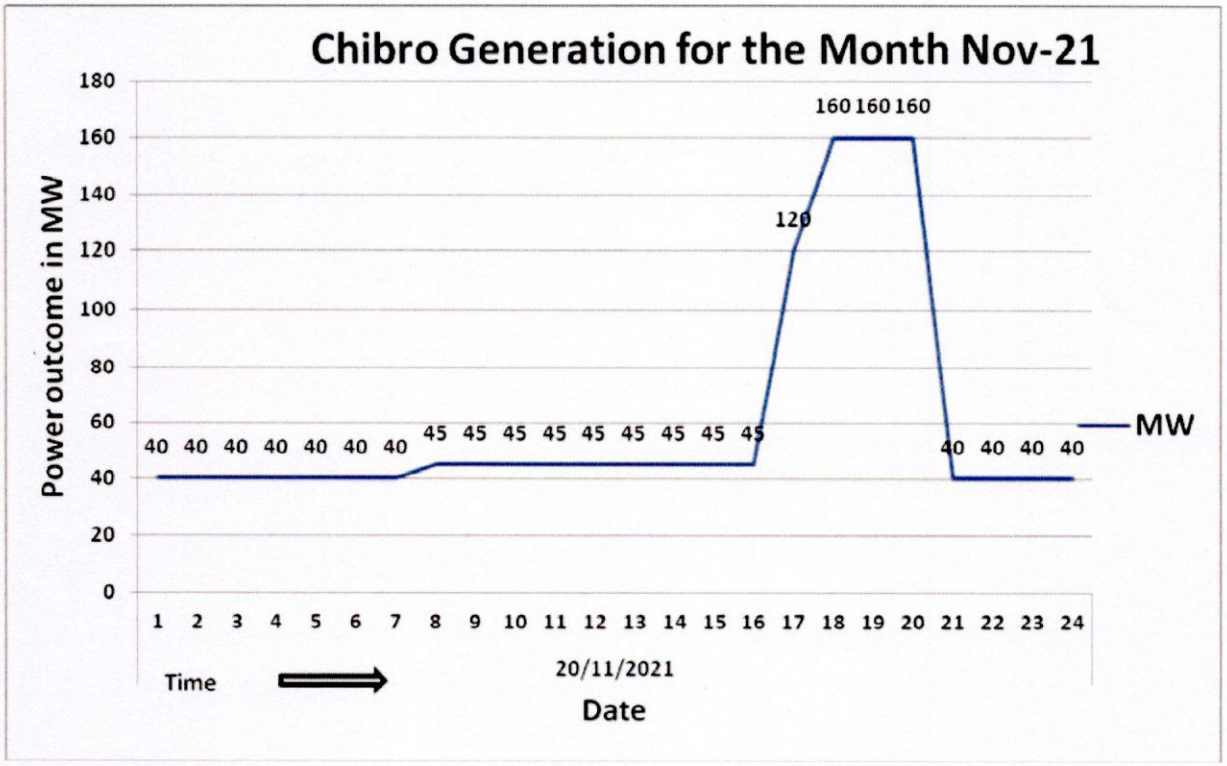
September-21



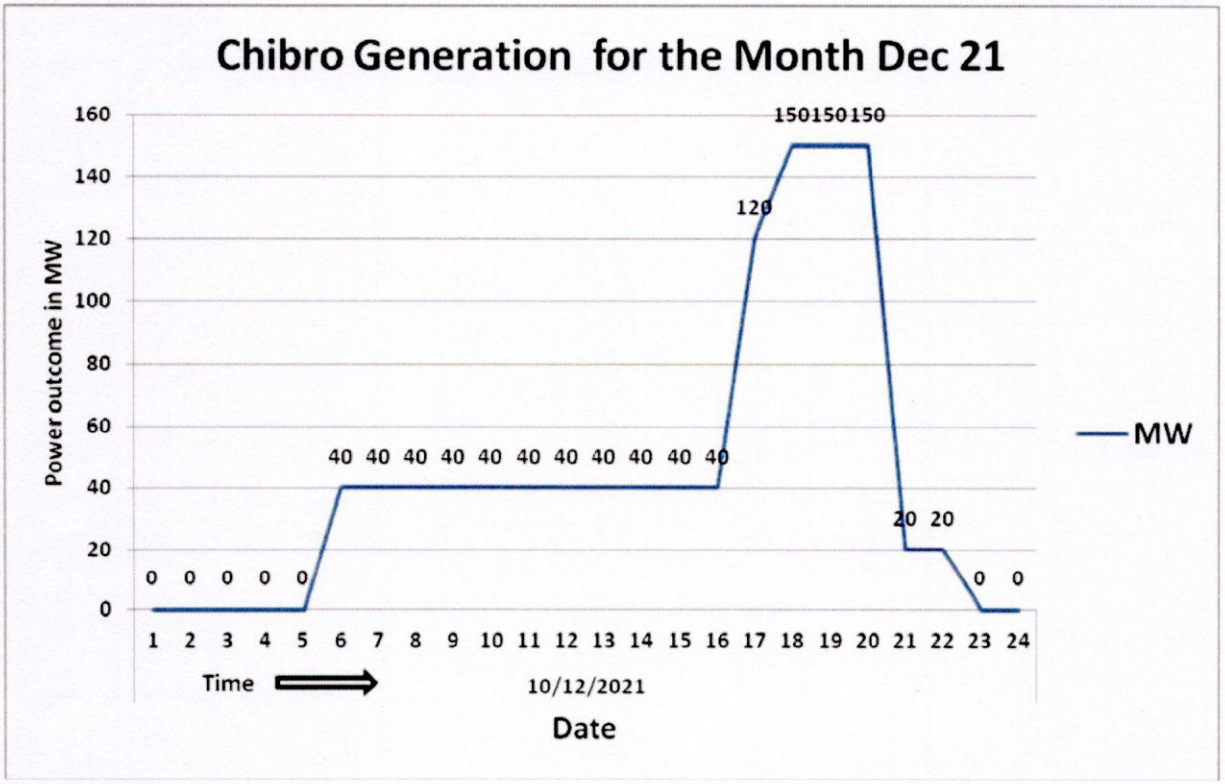
October-21



November-21



December-21



From the above graph, it is clear that generation is of more than 40 MW round the clock is available for 7 months and in rest of the months generation is not available for 24hours,hence islanding scheme based on these power house is not feasible.

It has been informed by EE(generation) that Chibro Power House operate safely for load variation from 40 MW to 56 MW and accordingly Khodri Power House operate from 20MW to 56 MW as per design characteristics of Francis turbine runner. Below this range Machine units makes a noise and vibration increases which is not safe for operation.

Islanding load to be identified shall exclude the anticipated impact due to load shedding under defense mechanism prior to islanding through existing UFR & df/dt relays. Also the essential load of Dehradun during islanding condition is identified from various PTCUL substation and data were also provided by PTCUL substations in coordination with UPCL for Jan-Dec, 2021. Details of load to be fed to achieve Load-Generation balance is as under:

S.No	Name of the feeder	Max. Load (amp)	Average load (Amp)
Emanating from 132 kV S/s Bindal			
1.	33 kV MES	79	42
2.	11 kV Vishwakarma Bhawan	25	25
3.	11 kV Secretariat	40	10
4.	11 kV Yamuna Colony	19	10
5.	11kV Ganga Bhawan	33	30
6.	11 kV Bhandaribagh	159	120
7.	11 kV Lakhibagh	190	110
	Total load fed through Bindal (MW)		**7.1**
Emanating from 132 kV S/s Purkul			
1	11kV CM house	23	15
2.	11kV Beezapur	64	30
3.	11kV Jakhan	184	120
4.	11kV Usha colony I &II and 11 kV Pacific	60	60
5.	11 kV Mall road	138	120
6.	11 kV waterworks	108	100
	Total load fed through Purkul (MW)		**7.4**
Emanating from 132 kV S/s Majra			
1	33 kV IMA	50	30
2.	11 kV Vidhan Sabha	10	10
3.	11 kV Clement town	282	270
4.	33 kV Deal	38	30
	Total load fed through Majra (MW)		**7.6**
Emanating from 220 kV S/s Jhajjra			
1.	11kV Air force	26	20
2.	11 kV AWH	36	20
3.	11 kV Rampur	180	25
4.	33 kV Linde	138	120
5.	11 kV Blood bank and synergy hospital	210	114
	Total load fed through Jhajra (MW)		**9**
Emanating from 132 kV S/s Laltappar			
1.	33 kV Himalayan hospital	46	52
2.	33 kV Airport	16	18
	Total load fed through Lalthapar (MW)		**3.5**
	Total Essential Load(MW)		**35**

From the above table, it is deduced that the maximum load contributes to approximately 48 MW and average load contributes to approximately 35 MW.

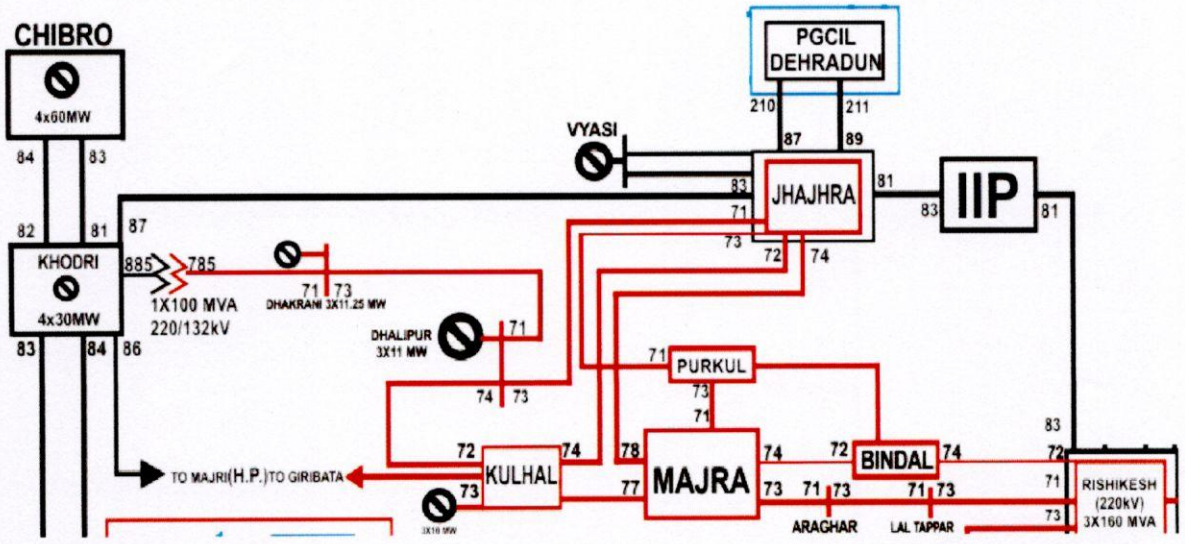
The transmission network diagram for dehradun is elaborated as below

The Dehradun is surrounded by following generators

a) Chibro Power house (4*60 MW)
b) Khodri power house (4*30MW)
c) Dhakrani power house (3*11.25 MW)
d) Dhalipur power house (3*11MW)
e) Vyasi power house (2*60MW)
f) Kulhal power house (3*10 MW)

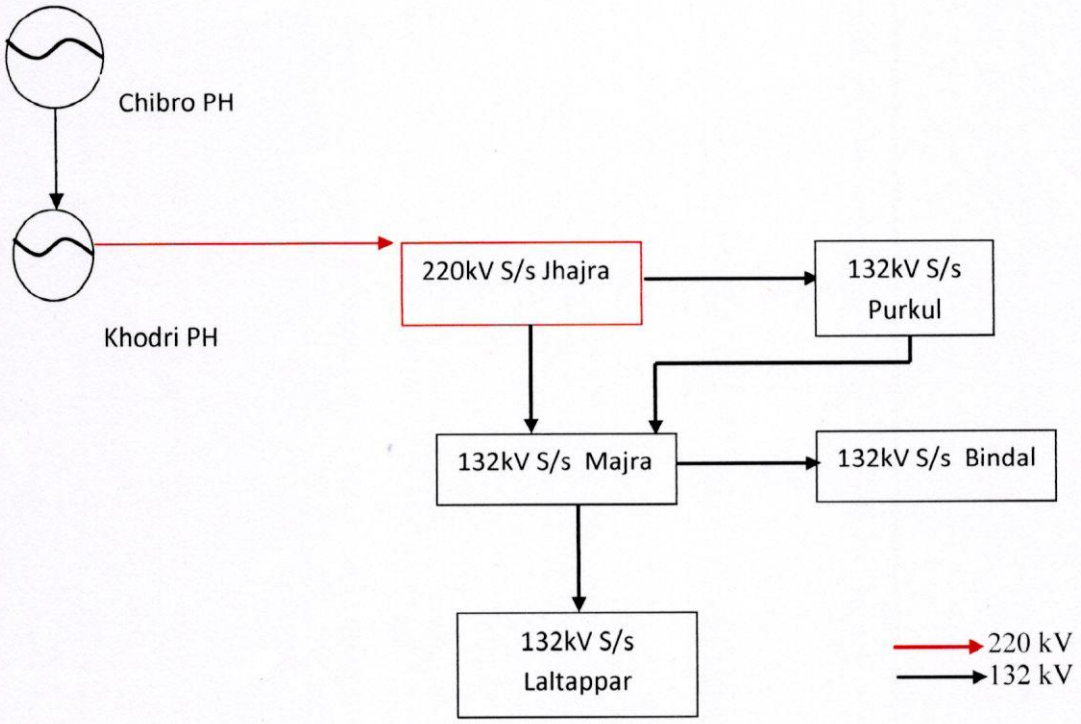
Through these Power house the load is being fed to Dehradun area through following PTCUL substation from where 33 kV distribution feeders are emanating:-

a) 220 kV Substation Jhajjra (2X160MVA, 220/132kV and 2X80MVA, 132/33kV T/f)
b) 220 kV Substation IIP (2X50MVA, 220/33kV T/f)
c) 132 kV Substation Purkul (1X20 and 1X40MVA. 132/33kV T/f)
d) 132 kV Substation Majra (3X40MVA, 132/33kV T/f)
e) 132 kV Substation Laltappar (2X40MVA, 132kV/33)
f) 132 kV Substation Bindal (3X40MVA, 132kV/33kV)



Details of Network identified to fed essential load through Chibro & Khodri Power House during Island formation:-

1. One unit of (60MW) Chibro Ph in tandem with one Unit of Khodri PH (30MW)
2. One Ckt of 220kV Chibro –Khodri line
3. 220kV Khodri-Jhajra line
4. One no. 160MVA, 220/132kV and 80MVA 132/33kV T/f at 220kV S/s Jhajra
5. 132kV Jhajra –Purkul line
6. 20MVA, 132/33kV T/f at Purkul S/s
7. 132kV Jhajra-Majra line
8. One no. 40MVA, 132/33kV T/f at Majra.
9. 132kV Majra- Bindal line
10. One no. 40MVA, 132/33kV T/f at Bindal.
11. 132kV Majra- lalthapar line
12. One no. 40MVA, 132/33kV T/f at Bindal.



Network diagram connecting Chibro and Khodri connecting to load during islanding conditions

4.0 Conclusion

Based on the load –generation data, it is observed that generation of more than 40 MW round the clock is available for 07 months and generation is not available round the clock during remaining 05 Months. Hence, the supply to the essential loads will not be available throughout the year during proposed islanding scheme of Dehradun. Further, the single machine of Chibro Power House operates safely for load variation from 40 MW to 56 MW and accordingly the single machine of Khodri Power House operates from 20MW to 26 MW as per design characteristics of Francis turbine runner. Below this range Machine units makes a noise and vibration increases which is not safe for operation. The above facts thus make the islanding scheme technically not feasible and unviable.

न्यूक्लियर पावर कारपोरेशन ऑफ इण्डिया लिमिटेड
NUCLEAR POWER CORPORATION OF INDIA LIMITED
(भारत सरकार का उद्यम)(A Government of India Enterprise)
रावतभाटा राजस्थान साइट-३-४ Rawatbhata Rajasthan Site-3&4
डाकः अणुशक्ति, वायाः कोटा (राज.)PO: Anushakti–323303 Via: Kota (Raj.)
फोन : 01475-242005, फैक्स :01475-242309, ईमेल: rdyadav@npcil.co.in

No.RR Site/Unit-3&4/STE(E&I)/2022/S/65 Date: October 12, 2022

विषय : रिएक्टर घटकों के अनिवार्य बदलाव के लिए 27/10/2022 से 28/05/2024 (लगभग 577 दिन) तक एनपीसीआईएल आरएपीएस–बी इकाई–1 आउटेज के संबंध में।

Sub : Regarding NPCIL RAPS-B Unit-1 outage w.e.f 27/10/2022 to 28/05/2024 (around 577 days) for mandatory replacement of reactor components.

Ref : i) MoM of 23rd LGBR subcommittee meeting of NRPC dtd 29/10/2021 regarding proposed outage schedule 2022-23.
ii) OCC-199 approval for NPCIL RAPS-B unit-1 outage from 27/10/2022 to 28/05/2024 (577 days)
iii) MoM of 27th LGBR subcommittee meeting of NRPC dtd 29/09/2022

Sir,

NPCIL RAPS-B unit-1 outage is being taken for mandatory replacement of Enmasse Reactor Coolant Channels & reactor feeders w.e.f 27/10/2022 to 28/05/2024 (around 577 days) as per LGBR subcommittee meeting dtd 27/10/2021 & 27/09/2022 and OCC-199 approval dtd 16/09/2022.

However, RAPS-B unit-2 will continue to operate & no planned outage is proposed (except emergency/ forced shutdown / trips if any) in this period (27/10/2022 to 28/05/2024).

In this regard, beneficiary DISCOMs (UPPCL, JKPCL, PSPCL, HPPC & Rajasthan) may kindly arrange respective 50% share from other resources, for meeting their requirements during the period (27/10/2022 to 28/05/2024).

Regards,

12.10.2022 12.10.2022

आर.डी. यादव R.D.Yadav
वरिष्ठ तकनीकी अभियंता (ई एंड आई) STE(E&I)
एनपीसीआईएल, आरएपीएस–बी NPCIL, RAPS-B

UPPCL
PSPCL
HPPC
PDD, J&K
Rajasthan

Cc to : MS, NRPC- for kind information pl
Site Director-for kind information pl
SD/CS-for kind information pl
OS/SOE
TSS
MS

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

Ref: - N1/AM/

Date:- 06th October'2022

To,

The Member Secretary,
Northern Regional Power Committee,
18-A, Qutab Institutional Area,
Katwaria Sarai, New Delhi-110 016

Subject: **Setting up of 3000TPD Municipal Solid Waste (MSW) based Waste to Energy (WtE) facility at Narela- Bawana by MCD.**

Dear Sir,

This office is in receipt of a communication no. E-In-CII/MCD/2022-23/D-118 dt. 31/08/2022 from MCD for Setting up of 3000TPD Municipal Solid Waste (MSW) based Waste to Energy (WtE) facility / plant at Narela- Bawana by them, wherein they requested to shift following transmission lines on multi-circuit towers so that the required space for setting up the plant can be made available:

1. 400KV D/C Bawana- Bahadurgarh – Bhiwani transmission line of POWERGRID
2. 400KV D/C Bawana – Bamnauli transmission line of DTL.

On the subject matter, a meeting was held at the office of Chief Secretary, Delhi on 23-09-2022, wherein it has been decided to shift these lines of different utilities on multi-circuit towers in view of national importance of the project. Copy of MOM is placed herewith for ready reference. The statuary and commercial aspect between the utilities are yet to be finalized.

The same may be included in forthcoming 200th OCC meeting for records please.

Thanking You,

Yours sincerely,

06/10/22

(A. K. Behera)
Chief GM (AM), NR-1

Encl:-

i) E-In-CII/MCD/2022-23/D-118 dt. 31/08/2022 from MCD
ii) Minutes of Meeting held on 23-09-2022 at the office of Chief Secretary, Delhi

Copy :-

i) ED, NR1 — For kind information please.
ii) ED(AM), CC — --- do--

MUNICIPAL CORPORATION OF DELHI
OFFICE OF THE ENGINEER-IN-CHIEF
20th LEVEL, DR. S.P. MUKHERJEE
CIVIC CENTRE J.L.N MARG, NEW DELHI-110002
Ph: 011-23226903, **Email – einc-sdmc@mcd.nic.in**

No. E-In-C-II/MCD/2022-23/D- 118 Dated 31/06/22

To

Chief General Manager (AM),
Power Grid Corporation of India Ltd.
Northern Region-I HQ, SCO Bay No. 5 to 10
Sector 16-A Faridabad – 121002, Haryana

Subject: Proposal for setting up of 3000 TPD Municipal Solid Waste (MSW) based Waste to Energy (WtE) facility at Narela-Bawana.

Sir,

This is in continuation of earlier communication to Senior GM, BDD Powergrid vide letter no. CE(Project)/DEMS/MCD/2022-23/D-02 dated 31.05.2022. This communication is being made with an intend to communicate the plan of Municipal Corporation of Delhi (MCD) for setting up a Waste to Energy (WtE) plant at Narela - Bawana, Delhi. The proposed project is structured for handling 3000 TPD (+/- 20%) of MSW. Tenders for the project have been invited. For this purpose, MCD has earmarked a land parcel of approximately 35 acres area at Narela-Bawana **(Layout copy attached)**. However, there are 3 numbers 440 KV HT transmission lines passing through the proposed project site. It is roughly estimated that approx. 18 to 20 acres land, clear of transmission lines, should be available for the project.

The said issue was also discussed in the review meeting held on 14th May 2022 in the Conference Hall, 5th Level, Delhi Secretariat, I.P Estate, New Delhi, chaired by Hon'ble Chief Secretary of Delhi. In the said meeting, following suggestions were made:

I. The Chief Secretary observed that it will be more prudent to obtain NOC from DTL and Power Grid to avoid complications later on at the execution stage. This will enable better layout planning of the project.
II. The Chief Secretary also suggested that feasibility of re-location of the transmission lines may also be examined by the Power Deptt, so that more land may be available for the proposed plant. Cost of diversion of existing transmission line may be compared with cost of land which will be made available for WtE Plant.

In view of above, MCD would like to request your department for providing consent/ approval for the construction of proposed Waste to Energy (WtE) facility and the area that can be safely utilized for construction purpose, based on the land area

available as per the attached layout. The Corporation may also be informed about feasibility of relocation of transmission lines/integration with DTL transmission lines on multi circuit towers with 14 meters vertical clearance or any other suitable option and, if found feasible, the cost to be borne by MCD. Since, this information is required to be provided to the prospective bidders, it is requested to kindly address the above issues on priority basis.

With regards

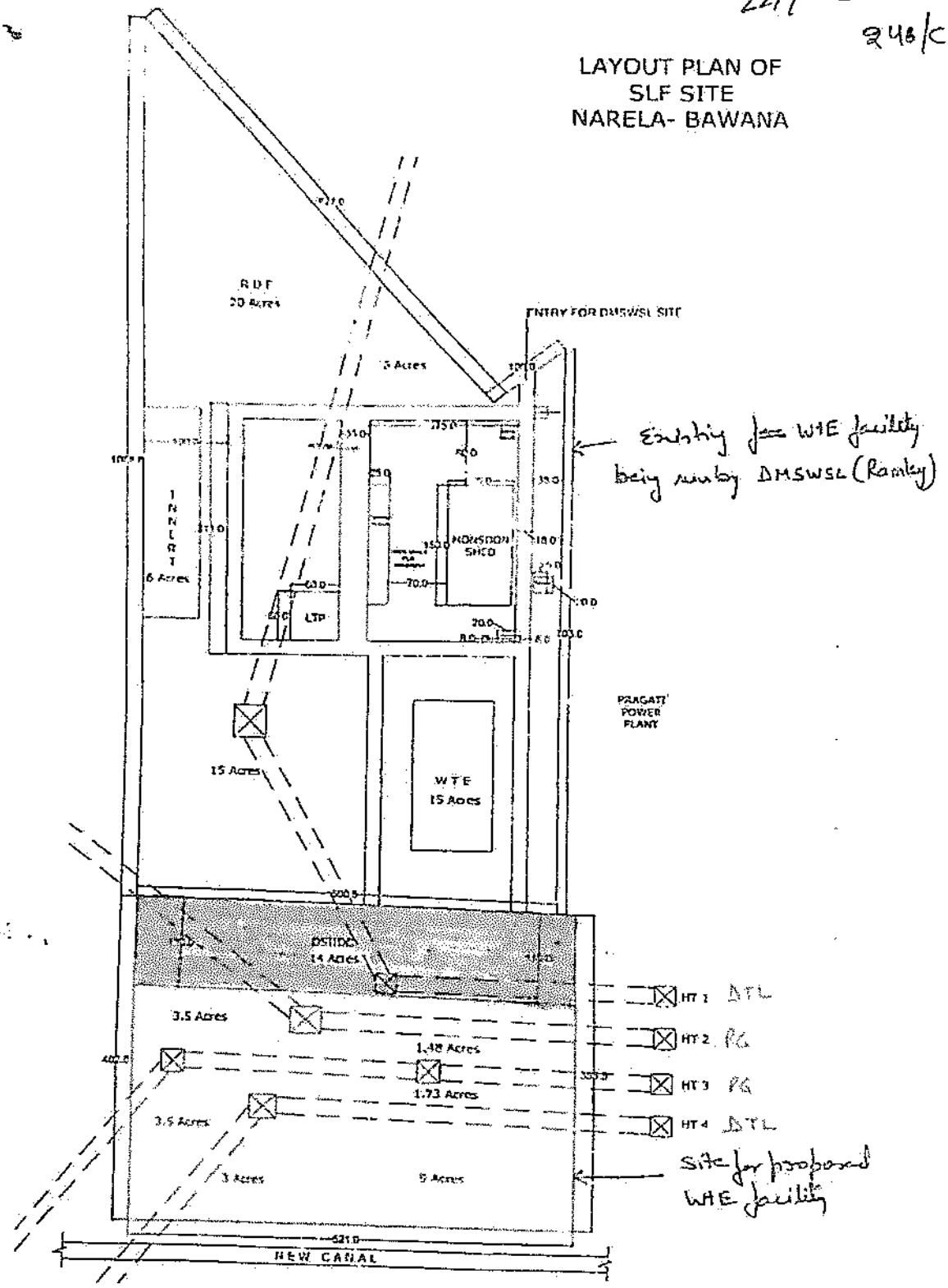
Engineer-In-Chief –II

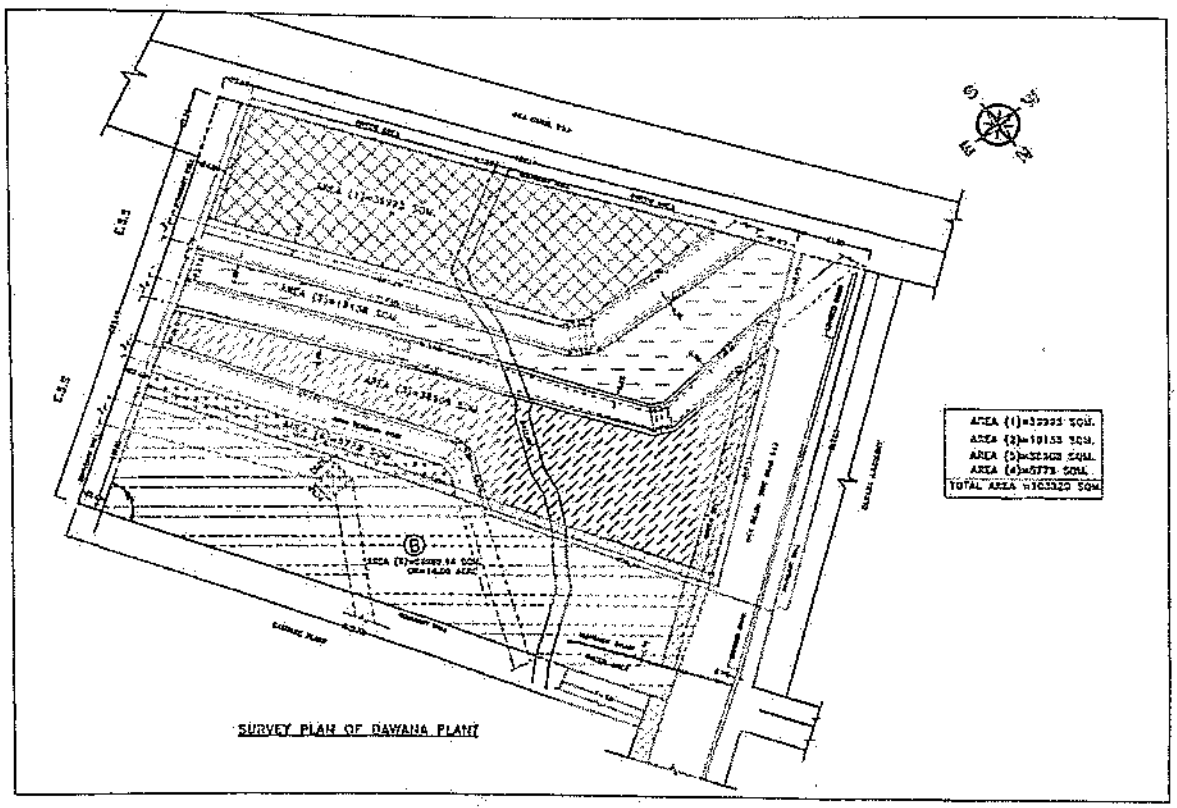
Enclosure: As above

221/C

248/C

LAYOUT PLAN OF SLF SITE NARELA- BAWANA





Note: Area calculated after leaving 6mtr space on either side of H.T. Liner.

OFFICE OF THE CHIEF SECRETARY
GOVERNMENT OF NATIONAL CAPITAL TERRITORY OF DELHI
5TH LEVEL, A-WING, DELHI SECRETARIAT, NEW DELHI – 110002

No. CS/2022/14565-14570 Date: 27.09.2022

Minutes of the meeting held under the Chairmanship of Chief Secretary, GNCTD on 23/09/2022 to discuss issue of shifting of 400 KV transmission lines of DTL and Power Grid passing through the site of proposed Waste-to-Energy (WtE) facility of Municipal Corporation of Delhi at Narela-Bawana

The above meeting was held under the Chairmanship of Chief Secretary, Govt. of NCT of Delhi, wherein the following officers were present:

Present :
1. Commissioner, MCD
2. Secretary (Power), GNCTD
3. Executive Director, Power Grid Corporation Ltd.
4. Director (Operations), DTL
5. Chief Engineer (Project), MCD
6. Advisor, MCD

2. It was informed that MCD has invited bids for setting up of Waste to Energy (WtE) Facility for handling 3000 TPD (±20%) of MSW. For this purpose, MCD has earmarked a land parcel of approx. 35 acres at Narela-Bawana. There are 03 numbers of 400 KV transmission lines (DTL–1, PowerGrid–2) passing through the proposed site (layout plan attached as **Annexure-A**). Due to these transmission lines unhindered land available for the Waste to Energy Plant is only about 8.40 acres, which is not sufficient to set up Waste to Energy Plant of this capacity.

3. Therefore, MCD has approached DTL and PowerGrid for relocation/ integration of one DTL and one PowerGrid line on multi-circuit towers. For technical feasibility, site has been inspected by the concerned officers of PowerGrid and DTL. During the meeting various options relating to shifting of DTL and PowerGrid line were deliberated in detail.

Contd. at p/2..

4. After detailed deliberations, the following decisions were taken:

i) Power Grid Corporation and DTL each has agreed to merge and shift one of their lines as per the enclosed plan attached **Annexure-B.**

ii) One time capital cost of shifting the line shall be borne by the MCD, which will be executed by the Power Grid Corporation by following laid down procedure in this regard.

iii) Power Grid Corporation and DTL will work out the detailed modalities of maintenance and other issues of this arrangement.

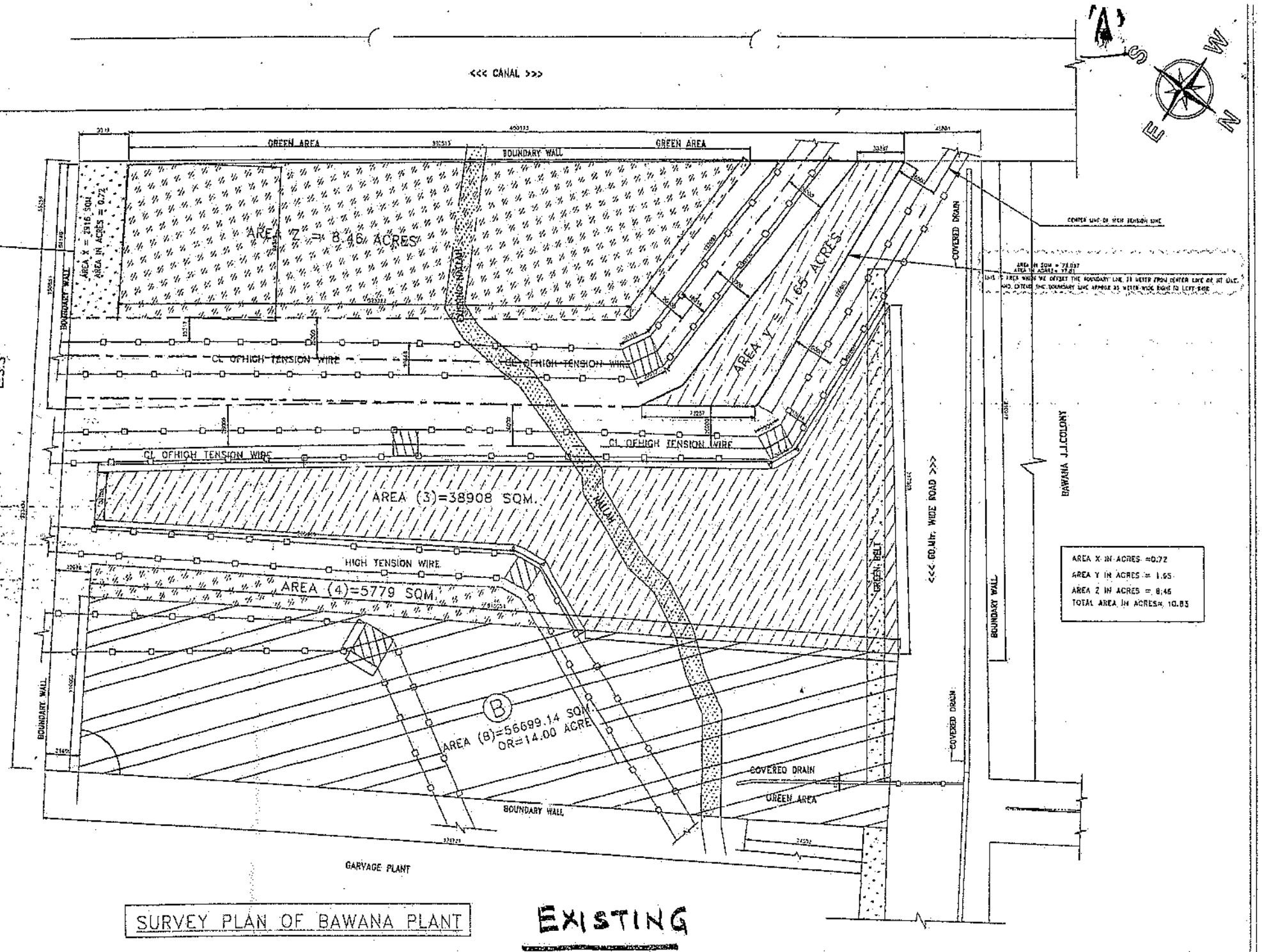
The meeting ended with vote of thanks to the Chair.

27-09-2011

(Ashish Madhaorao More, IAS)
Staff Officer to Chief Secretary

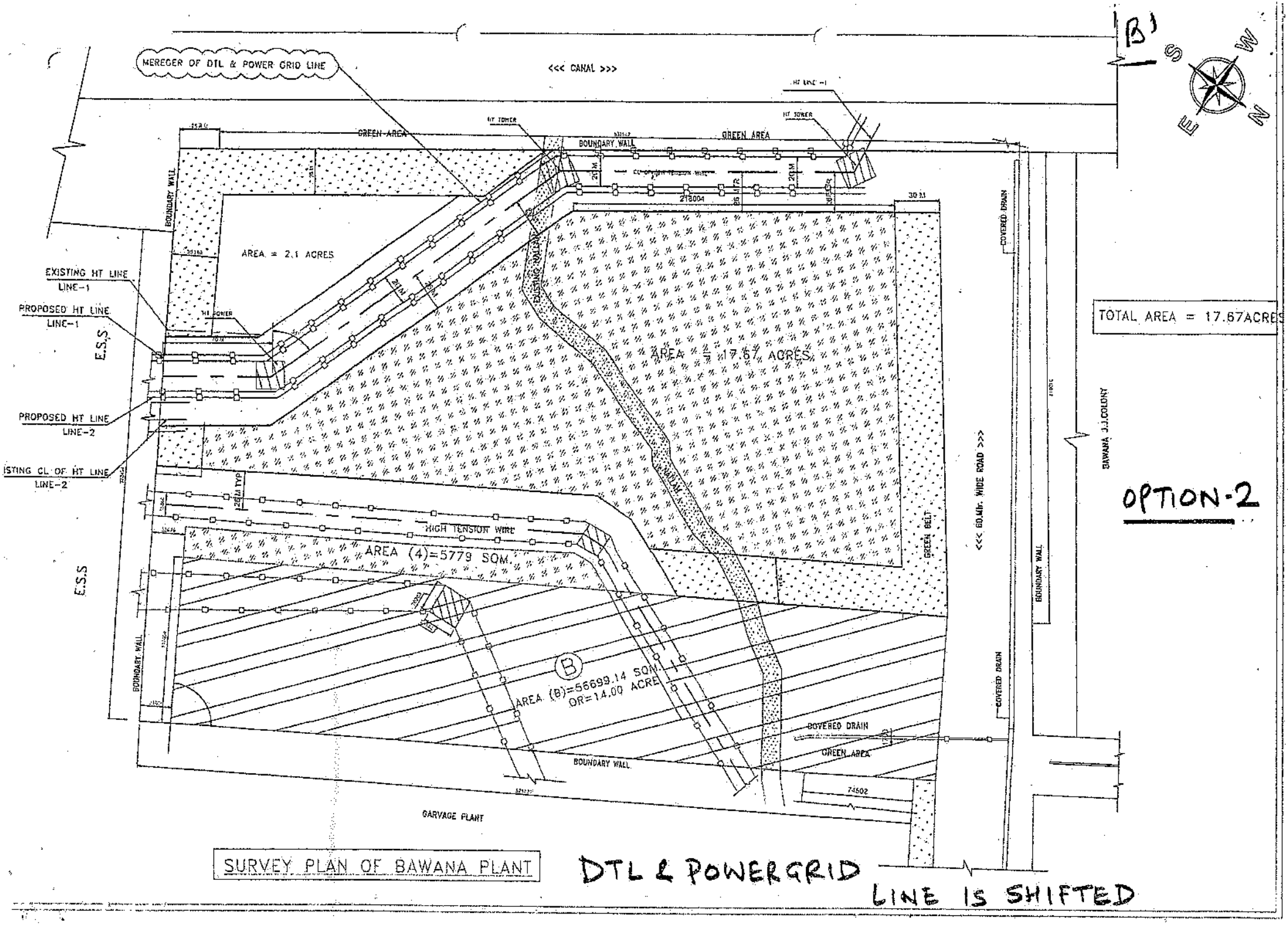
Copy to:

1. Commissioner, MCD, 9th Floor, E-1 Wing, Civic Centre, JLN Marg, New Delhi - 110002
2. Secretary (Power), GNCTD
3. Executive Director, Power Grid Corporation Ltd., Northern Region Headquarter, SCO, Bay No. 5-10, Sector 16-A, Faridabad, 121002
4. Director (Operations), DTL, 1st Floor, Shakti Sadan, Near Bal Bhawan, Kotla Marg, New Delhi.
5. Chief Engineer (Project), MCD (through Office of Commissioner, MCD Office)
6. Advisor, MCD (through Office of Commissioner, MCD)



SURVEY PLAN OF BAWANA PLANT

EXISTING


MEREGER OF DTL & POWER GRID LINE
<<< CANAL >>>
B'
S
W
E
N
HT TOWER
HT TOWER
GREEN AREA
BOUNDARY WALL
GREEN AREA
BOUNDARY WALL
AREA = 2.1 ACRES
EXISTING HT LINE
LINE-1
PROPOSED HT LINE
LINE-1
HT POWER
E.S.S
PROPOSED HT LINE
LINE-2
ISTING CL OF HT LINE
LINE-2
CASTING YARD
AREA = 17.67 ACRES.
TOTAL AREA = 17.67ACRES
COVERED DRAIN
BAWANA J.J.COLONY
OPTION-2
<<< 60.4Mtr. WIDE ROAD >>>
GREEN BELT
HIGH TENSION WIRE
AREA (4)=5779 SQM.
E.S.S
BOUNDARY WALL
B
AREA (B)=56699.14 SQM.
OR=14.00 ACRE
COVERED DRAIN
BOUNDARY WALL
COVERED DRAIN
GREEN AREA
BOUNDARY WALL
GARVAGE PLANT
SURVEY PLAN OF BAWANA PLANT
DTL & POWERGRID
LINE IS SHIFTED

Annexure-A.VII

Office of the Executive Engineer TLMD-IV
Pampore Kashmir192121,Fax: 01933222600, E-mail: xentlmd4@gmail.com

Deputy General Manager,
PGCIL Wagoora.

No:TLMD-IV/ 1669-72
Date: 20-09-2022

Sub: Up gradation of CTs from 900A to 1600A at 450MVA, 220/132kV Grid station Pampore and HTLS re-conductoring of 220kV DC Wagoora –Zainakote Ckt-I will start in couple of days

Dear Sir,

It is intimated that in the month of June-2022, the CTs of Wagoora-Pampore Ckt-I and II have been upgraded from 900A to 1600A at grid station Pampore. As such it is advised to strengthen 220kV Bays accordingly at Wagoora end.

Pertinent to mention here that HTLS re-conductoring of 220kV DC Wagoora – Zainakote Ckt-I including strengthening of existing 220kV Wagoora Ckt-I bay at grid station Zainakote is likely to start within couple of days. The HTLS equivalent zebra conductor has current capacity of 1550A and can be utilized in full in case of outage of other Ckt. As such it is advised to take necessary strengthening of bay Ckt-I of 220kV Wagoora-Zainakote circuit accordingly.

Yours Sincerely,

Executive Engineer,
TLMD-IV, Pampore.

Copy to the;

1. Chief Engineer, JKPTCL, Kashmir for information.
2. Superintending Engineer O&M Circle Ist Bemina Srinagar JKPTCL for information.
3. AEE sub division-I/III, Zainakote TLMD-IV, Pampore for information.

National Load Despatch Centre

Import Capability of Uttar Pradesh for November 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 November 2022 to 30th November 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 November 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 November 2022 to 30th November 2022	00-24	7600	600	7000	3400	3600		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 November 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 November 2022 to 30th November 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 November 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 November 2022 to 30th November 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 November 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 November 2022 to 30th November 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						

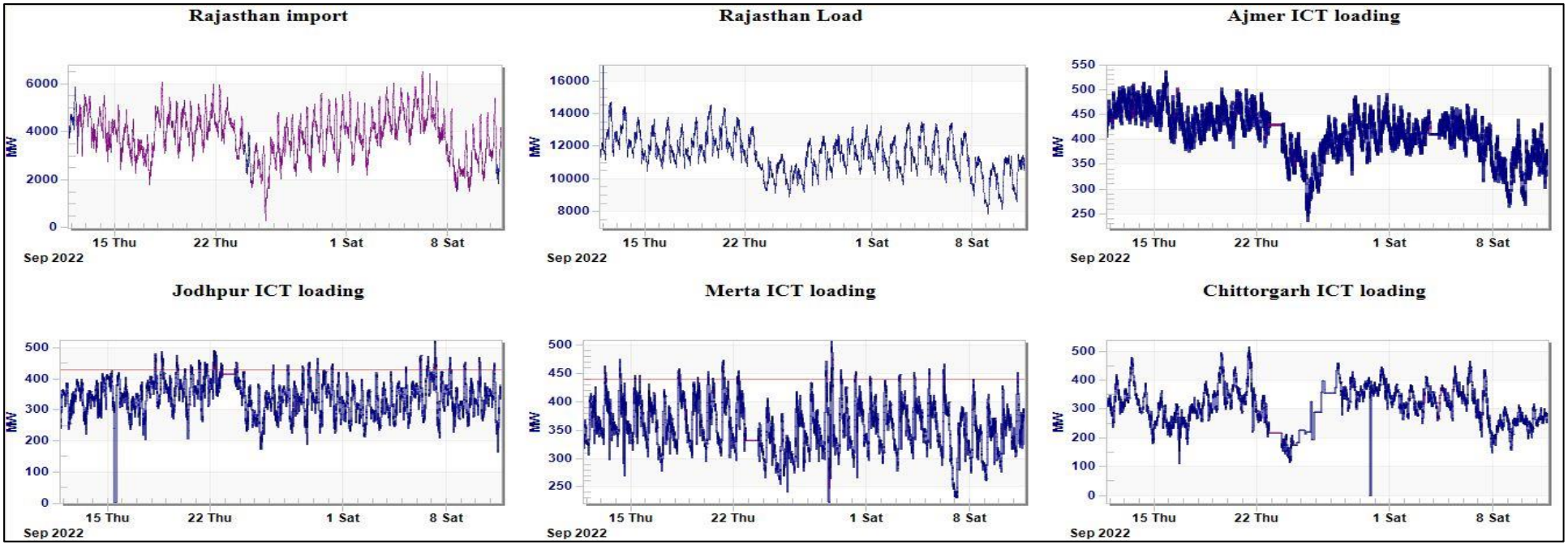
80% of LTA/MTOA/ISGS allocation capacity considered to account for machine outages

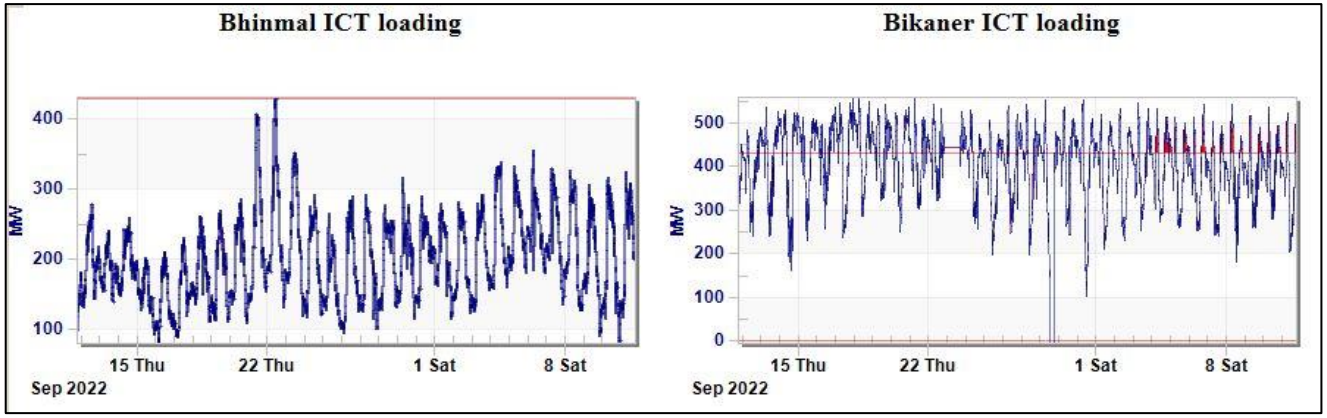
National Load Despatch Centre
Import Capability of Uttarakhand for November 2022

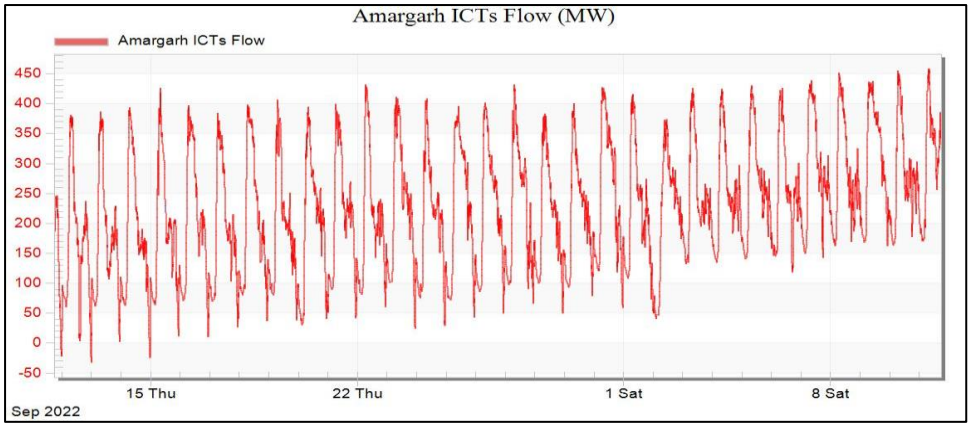
Issue Date: - Issue Time: 1600 Revision No. 0

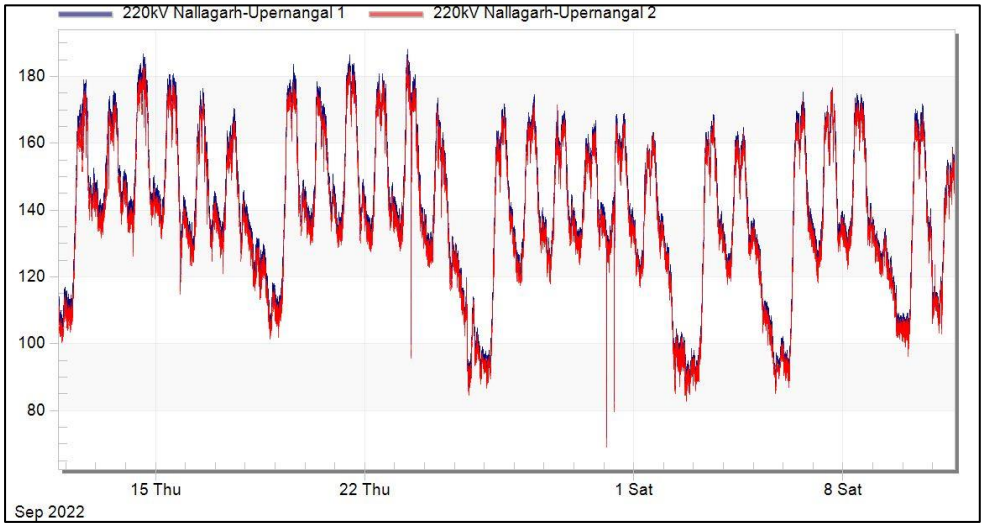
Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) (MW)	Margin Available for Short Term Open Access (STOA) (MW)	Changes in TTC w.r.t. Last Revision	Comments
1st November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


Rajasthan import
MW
6000
4000
2000
0
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022
Rajasthan Load
MW
16000
14000
12000
10000
8000
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022
Ajmer ICT loading
MW
550
500
450
400
350
300
250
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022
Jodhpur ICT loading
MW
500
400
300
200
100
0
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022
Merta ICT loading
MW
500
450
400
350
300
250
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022
Chittorgarh ICT loading
MW
500
400
300
200
100
0
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022


Bhinmal ICT loading
MW
400
300
200
100
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022
Bikaner ICT loading
MW
500
400
300
200
100
0
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022


Amargarh ICTs Flow (MW)
Amargarh ICTs Flow
450
400
350
300
250
200
150
100
50
0
-50
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022


220kV Nallagarh-Upernangal 1
220kV Nallagarh-Upernangal 2
180
160
140
120
100
80
15 Thu
22 Thu
1 Sat
8 Sat
Sep 2022

A. Details of Long Duration Transmission elements Outage as on 13.10.2022:-

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	1119	Due to fire in ICT	31.10.2022
2	80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SJ)	BR	SJVNL	17-10-2019	12:58	1091	Flashover/Fault in 80MVAR Bus Reactor cleared by Bus Bar Protection.	31.10.2022
3	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
4	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	ICT	UPPTCL	13-03-2020	02:46	944	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover.	TWC approved on 09.12.2021 for replacement with 500MVA new ICT . 30 Dec 2022
5	400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP)	ICT	UPPTCL	19-08-2020	08:12	785	ICT tripped on REF protection. Transformer caught fire and got damaged.	30 Nov 2022
6	50 MVAR Non-Switchable LR on Agra-Unnao (UP) Ckt-1 @Agra(UP)	LR	UPPTCL	28-10-2021	22:27	349	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.
7	220 KV AGRA(PG)-FEROZABAD(UP) (UP) CKT-1	Line	UPPTCL	27-11-2021	09:55	320	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.
8	400KV Bus 1 at Vishnuprayag(JP)	BUS	JPVL	02-12-2021	14:42	314	Bus bar protection operated at Vishnuprayag. Sparking in Bus Coupler CB.	March 2023
9	400/220 kV 240 MVA ICT 3 at Moradabad(UP)	ICT	UPPTCL	13-12-2021	22:38	303	Due to high DGA values, Hydrogen gas is above permissible limit.	30 Dec 2022
10	50 MVAR Bus Reactor No 1 at 400KV Moradabad	BR	UPPTCL	03-12-2021	00:00	313	Bushing Damged , Not available in UPPTCL . Written to designe circle .	30 Dec 2022
11	50 MVAR BUS REACTOR NO 1 AT 400KV PANKI(UP)	BR	UPPTCL	29-01-2022	08:56	257	Replacement of 50 MVAR Bus reactor by new 125 MVAR Bus Reactor.	30.10.2022
12	765 KV ANPARA_D-UNNAO (UP) CKT-1	Line	UPPCL	08-02-2022	10:06	247	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.
13	220 KV Kishenpur(PG)-Mir Bazar(PDD) (PDD) Ckt-1	Line	PDD JK	19-02-2022	21:45	235	Tower no. 170 collapsed.	
14	400 KV Parbati_3(NH)-Sainj(HP) (PKTCL) Ckt-1	Line	PKTCL	11-03-2022	03:21	216	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.	
15	400 KV Sainj(HP) - Bus 2	ICT	HPPTCL	11-03-2022	03:21	216	Phase to earth fault R-N xlpe cable puncture at parawti 3 end which led to tripping of the line as well as bus	
16	220 KV Gazipur(DTL)-Shahibabad(UP) (UP) Ckt-2	Line	UPPTCL	30-04-2022	19:30	165	Line remains charge at No load from UP end. Manually open at 19:30 on 30/04/22 due bending of tower no. 4	
17	220 KV Gazipur(DTL)-Noida Sec62(UP) (UP) Ckt-1	Line	UPPTCL	30-04-2022	22:55	165	Tower tilted on one side at tower no 10 from Gazipur (DTL) end.	
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	153	Transformer Differential protection operated.	
19	400/66 kV 250 MVA ICT 1 at HMEL (PS)	ICT	PSTCL	12-05-2022	14:05	153	Differential relay operated.	
20	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.	FTC under processing
21	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.	
22	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.	
23	407 MAIN BAY - 80 MVAR BUS REACTOR NO 1 AT 400KV AGRA SOUTH(UP) AND SELECT	BAY	UPPTCL	21-07-2022	00:00	84	Due To Problem In Reactor Side Isolator While Shut Down Return Of 80 MVAR Bus Reactor. Opened At 15:58 Of 07/04/22	30.11.2022
24	50 MVAR Non-Switchable LR on Akal-Jodhpur (RS) Ckt-1 @Jodhpur(RS)	LR	RRVPNL	07-07-2022	21:10	97	To take-out Line Reactor out of service due to high DGA violation; for internal inspection by OEM.	
25	400/220 kV 500 MVA ICT 1 at Bhiwani(BB)	ICT	BBMB	31-07-2022	04:42	74	Tripped due to tripping of 220 KV Bhiwani-Hissar ckt-2.ICT under inspection.	
26	220/33 kV 125 MVA ICT 4 at Saurya Urja Solar(SU)	ICT	Saurya Urja	31-07-2022	16:28	73	Differential, PRD, HV REF and Buchholz tripping	
27	125 MVAR Bus Reactor No 1 at 400KV Chamera_1(NH)	BR	NHPC	14-08-2022	11:31	60	High Acetylene content found during DGA of Y-Phase Bus Reactor.	
28	765 KV Agra-Gwalior (PG) Ckt-1	Line	POWERGRID	25-08-2022	05:12	49	Phase to earth fault R-N , Dist. 37km, Fault current 12.2kA from Agra. Charging attempt failed at 07:11Hrs (25.08.2022). During patrolling, 01 no. Tower found collapsed at Loc. no. 247.	
29	412 MAIN BAY - 400KV AKAL-JODHPUR (RS) CKT-1 AT JODHPUR(RS)	BAY	RRVPNL	02-09-2022	15:05	40	Replacement of circuit breaker (Bus B side breaker 852B CB of 400kV Jodhpur-Akal line at jodhpur end) Line will remain in service with 852 A CB.	
30	400/220 kV 315 MVA ICT 3 at Mundka(DV)	ICT	DTL	05-09-2022	19:18	37	Fire observed on both sides bushing of 315 MVA ICT-3.	
31	400 KV BAREILLY-UNNAO (UP) CKT-2	Line	UPPTCL	13-09-2022	10:26	30	for Preventive Maintenance	
32	400KV Bus 2 at Parbati_3(NH)	BUS	NHPC	14-09-2022	16:32	28	Rectification work in Generator GIS Bay CB.	
33	400/220 kV 240 MVA ICT 2 at Orai(UP)	ICT	UPPTCL	24-09-2022	00:03	19	Differential protection Trip, REF protection Trip.	
34	FSC(40%) of 400 KV Kala Amb(PKTL)-Sorang(Greenko) (Greenko) Ckt-1 at Kala Amb(PKTL)	FSC	POWERGRID	26-09-2022	09:47	17	To attend Unbalance current that is rapidly increasing in B phase. Charging code was issued as NR2209-4483, but cancelled due to Unbalance alarm is still not rectified.	

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	399	Due to Electrostatic precipitators (ESP) structure damage	
2	100 MW Koteshwar HPS - UNIT 1		THDC	04-11-2021	22:58	342	Due to fault in GT	
3	108 MW Bhakra HPS - UNIT 1		BBMB	15-12-2021	12:05	301	Renovation Modernization and upgradation of capacity to 126MW	
4	34 MW Delhi Gas Turbines - UNIT 9		DTL	12-02-2022	20:00	242	STG Governor oil leakage	
5	30 MW Delhi Gas Turbines - UNIT 5		DTL	12-02-2022	21:04	242	Due to tripping of associated STG at 20:00 hrs	
6	660 MW Suratgarh SCTPS - UNIT 7		RRVPNL	15-03-2022	01:32	212	FAILURE OF R PHASE BUSHING OF GT-7A.	
7	210 MW Guru Hargobind Singh TPS (Lehra Mohabbat) - UNIT 2		PSPCL	13-05-2022	21:36	152	ESP breakdown. Rectification works under progress as confirmed by SLDC-PS.	
8	253 MW Bawana GPS - UNIT 5		DTL/Pragati CCGT	03-06-2022	22:04	131	C&I problem	
9	Ramgarh GPS - UNIT 2		RRVPNL	04-06-2022	01:17	131	Due to fire accident in GT - 2	

10	109.3 MW Auraiya GPS - UNIT 6		NTPC	28-06-2022	22:50	106	hunting in line pressure of Liquid fuel (now RSD)	
11	250 MW Suratgarh TPS - UNIT 1		RRVPNL	30-06-2022	18:24	104	Stator earth fault	
12	210 MW Kota TPS - UNIT 3		RRVPNL	08-08-2022	23:44	65	Due to problem in seal oil flow of generator.	

Sr No	Element Name	Outage Date	Outage Time	Reason
1	220 KV Nara(UP)-Roorkee(UK) (UP) Ckt-1	11-Sep-22	14:42	B-N fault, fault dist-3.9Km, Fault current-8.79KA. As per PMU, No fault observed.
		16-Sep-22	08:07	Zone-1 trip, Ph- B, fault current-IA= 216A, IB= 4002A, IC= 105A, Distance- 34.05km. As per PMU, B-N fault occured, no auto-reclosing observed.
		20-Sep-22	08:25	Zone-1 trip, Ph A, Fault current IA= 5158.14A, distance- 26.587km, 86. As per PMU, R-N fault occured, no auto-reclosing observed.
		22-Sep-22	16:00	B-N fault, Zone-1, Dist. 31.424km, Fault current 4.625kA from Nara end. As per PMU, B-N fault occured, no auto-reclosing observed.
2	220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt-1	08-Sep-22	13:34	Transient fault. As per PMU, No fault observed.
		10-Sep-22	23:50	Phase to earth fault B-N. As per PMU, B-N fault occurred and delayed clearance of 440ms with no auto-reclosing observed.
		11-Sep-22	16:45	Phase to phase fault R-Y. As per PMU, R-Y fault is observed.
		25-Sep-22	05:42	Phase to earth fault B-N. As per PMU, B-N fault occurred and delayed clearance of 440ms with no auto-reclosing observed.

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	220 KV Nara(UP)-Roorkee(UK) (UP) Ckt-1	4	UP/UK
2	220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt-1	4	UP/UK

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)	Fault Clearance time (in ms)
					Date	Date	Time			
1	GD-1	1) 40 MW Sewa-II HPS - UNIT 1 2) 40 MW Sewa-II HPS - UNIT 2 3) 220 KV Hiranagar(PDD)-Sarna(PS) (PG) Ckt-1 4) 40 MW Sewa-II HPS - UNIT 3 5) 220 KV Samba(PG)-Hiranagar(PDD) (PDD JK) Ckt-2 6) 220 KV Samba(PG)-Hiranagar(PDD) (PG) Ckt-1 7) 132 KV Hiranagar(PDD)-Sewa_2(NH) (PG) Ckt-2 8) 132 KV Hiranagar(PDD)-Sewa_2(NH) (PG) Ckt-1	J & K	NHPC, PDD JK, POWERGRID	1-Sep-22	1-Sep-22	20:44	03:32	1. In antecedent condition, 220kV Sambha-Hirangar ckt-1 & Ckt-2 were carrying 103 MW & 97MW respectively and 40MW Unit-1, 2 & 3 at Sewa-2 HEP were carrying 37MW , 38MW & 41MW respectively. 2. As reported at 17:12hrs, R-ph PT of 132 kV main Bus at Hiranagar blast and bus bar protection operated. As per PMU at Sambha(PG), R-N fault with delayed clearance in ms is observed. phase to earth fault with delayed clearance in 760ms is observed. 3. All 220kV & 132kV elements tripped at Hiranagar S/s. 4. Due to loss of evacuation path, all three(03) 40MW units of Sewa-2(NHPC) also tripped. 5. As per SCADA, load loss of approx. 4758MW observed in J&K control area & generation loss of approx. 116MW is observed at Sewa-2(NHPC) HEP.	1280
2	GD-1	1) 220 KV Hissar(PG)-Fatehabad(HV) (HVPNL) Ckt-2 2) 220 KV Fatehabad(PG)-Fatehabad(HV) (HVPNL) Ckt-2 3) 220 KV Fatehabad(PG)-Fatehabad(HV) (HVPNL) Ckt-1 4) 220 KV Hissar(PG)-Fatehabad(HV) (HVPNL) Ckt-1	HARYANA	HVPNL	3-Sep-22	3-Sep-22	22:37	03:11	1. 220/132kV Fatehabad(Har) substation have double main single breaker bus scheme. 2. During antecedent condition, 220/132kV 100MVA Transformer-4, 220kV lines to Fatehabad(PG)ckt-2, Hissar(Har)ckt-2 & Mehna Khera ckt-2 were connected to 220kV Bus-1 and 220/132kV 100MVA Transformer-1&2, 220kV lines to Fatehabad(PG)ckt-1, Hissar(Har)ckt-1 & Mehna Khera ckt-1 were connected to 220kV Bus-2. 3. As reported, Bus bar protection was not in service at 220kV Fatehabad(Har) since 15.07.2021 due to defective I/P & O/P extension device (P849). The relay was got repaired & configuration of same is pending from firm. 4. At 19:26hrs, 220kV B-ph CT of 220/132kV 100MVA Transformer-1 damaged and blast. The transformer tripped on differential protection operation and fault cleared. 5. Further after ~500ms, 220 kV B phase LA also damaged due to fire. 220kV B-ph Jack Bus also damaged and fell on 220kV Bus Bar-1 at Fatehabad(Har) which created bus fault. 6. As per PMU, B-N fault followed by Y-B ph-ph fault with delayed clearance in 400ms is observed. 7. As bus bar protection was not in service, all the 220kV lines except Mehna Khera ckt-2 tripped from Fatehabad(Har) end in Z-4. 220kV Fatehabad-Mehna Khera ckt-2 tripped from remote end in Z-2. 8. As per SCADA, change in demand of approx. 380MW is observed in Haryana control area	400
3	GD-1	1) 125 MVAR Bus Reactor No 1 at 400KV Koteswar(TH) 2) 400 KV Koteswar(TH)-Koteshwar(PG) (PG) Ckt-1 3) 400 KV Koteswar(TH)-Koteshwar(PG) (PG) Ckt-2 4)100 MW Koteshwar HPS - UNIT 4	UTTRAKHAND	POWERGRID, THDC	4-Sep-22	4-Sep-22	20:57	03:19	1. 400kV Koteshwar(THDC) & 400kV Koteshwar(PG) have double main transfer bus scheme. 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-1 & Ckt-2 are on same tower and line length are ~2km. 2. During antecedent condition, 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-2 was connected at 400kV Bus-2 and 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-1, 100 MW Koteshwar HPS - UNIT 4 & 125 MVAR Bus Reactor No 1 were connected at 400kV Bus-1. 3. As reported at 17:37hrs, B-ph LA at Koteshwar(THDC) end of 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-2 burst and line tripped. As per PMU at Koteshwar(PG), line tripped from Koteshwar(THDC) end after unsuccessful A/R operation. However, B-ph tripped at Koteshwar(PG) end with 440ms delay after A/R operation. 4. At the same time, 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-1 tripped on pole discrepancy relay operation at Koteshwar(THDC) end. As per PMU at Koteshwar(PG), line successfully autoreclosed from both end and then R-ph tripped from Koteshwar(THDC) end. Further after 2sec, pole descripency relay operated at Koteshwar(THDC) end and line tripped. 5. Due to tripping of both the evacuating lines, 100 MW Koteshwar HPS - UNIT 4 also tripped. 6. As per SCADA, change in generation of approx. 100MW at Koteshwar HEP is observed.	440
4	GD-1	1) 400 KV Jhatikara(PG)-Mundka(DV) (DTL) Ckt-1 2) 400 KV Jhatikara(PG)-Mundka(DV) (PG) Ckt-2 3) 400/220 kV 315 MVA ICT 3 at Mundka(DV)	NEW DELHI	DTL, POWERGRID	5-Sep-22	5-Sep-22	21:13	01:57	1. During antecedent condition, 400/220kV 315MVA ICT-1, 2 & 3 were running in parallel and feeding the load of 220kV Mundka (through 220/66 160MVA Transformer-1&2), 220kV Peeragarhi, 220kV Wazirpur and part load of 220kV Najafagrh. 2. As reported, at 19:16hrs, while doing piling work by DMRC near Peeragarhi chowk, Y-B phase to phase fault occurred on 220kV Mundka-Peeragarhi ckt-1. 3. At the same time, 400 & 220 kV side bushing of 400/220kV 315MVA ICT-3 at Mundka also got fire and damaged. 4. As reported, on this fault, 220kV Mundka-Peeragarhi ckt-1 tripped on distance protection operation and 400/220kV 315MVA ICT-3 tripped on differential protection operation. 5. As per PMU, R-Y phase to phase fault which cleared within 120ms is observed. 6. At the same time, 220/66kV 160MVA Transformer-2 at Mundka also tripped, 400 KV Jhatikara(PG)-Mundka(DV) (DTL) Ckt-1 & 2 tripped from Jhatikara end only due to protection coordination issue and 220kV Peeragarhi-Wazirpur ckt-1&2 also tripped on distance protection operation at Wazirpur end. 7. As per SCADA, load loss of approx. 200MW observed in Delhi control area. 8. At 19.24 hrs, 220kV Wazirpur S/s normalized through 22OkV Shalimar Bagh-Wazirpur ckt-1&2.	120

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)	Fault Clearance time (in ms)
					Date	Date	Time			
5	GD-1	1) 220 KV Mandola(PG)-Narela(DV) (DTL) Ckt-1 2) 220 KV Mandola(PG)-Narela(DV) (DTL) Ckt-2	NEW DELHI	DTL	6-Sep-22	6-Sep-22	13:28	01:19	1. 220/66kV Narela(DTL) S/s have double main single breaker bus scheme. During antecedent condition, 220kV Mandaula-Narela ckt-1&2 were connected to 220kV Bus-1 and was feeding the load of 220kV Narela through 220/66kV 100MVA Transformer-1,2&3 & load of DSIDC. Whereas 220kV Panipat-Narela ckt-1,2&3 were connected to 220kV Bus-2 and was feeding the 220kV Narela-Rohtak Road ckt-1&2. Bus coupler was in off position. 2. At 12:09 hrs, 220kV Mandaula-Narela ckt-1 tripped from both end on distance protection operation on R-N phase to earth fault. At the same time, 220kV Mandaula-Narela ckt-2 also tripped on over current earth fault protection operation at Narela end. 3. As per PMU at Bawana(DTL), R-N phase to earth fault with delayed clearance in 240ms is observed. 4. With the tripping of 220kV Mandaula-Narela ckt-1&2, load of 220kV Narela and DSIDC got affected. 5. As per SCADA, change in load of approx. 315MW is observed in Delhi control area. 6. At 12:14hrs, load of DSIDC was normalized through 220kV Bawana-DSIDC Ckt-1&2 and at 12:33hrs, load of 220kV Narela S/s was normalized by closing bus coupler at 220kV Narela S/s.	240
6	GD-1	1) 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-2	HARYANA	HVPNL	7-Sep-22	7-Sep-22	01:26	01:21	1. 220/132kV Sagwan S/s have double main single breaker bus scheme. It has power source through 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-1&2. 2. During antecedent condition, 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-1 was already out as it tripped on R-N fault at 08:30hrs on 06th Sept'22. 3. As reported at 00:05hrs on 07th Sept'22, Y-B phase to phase fault occurred on 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-2, fault distance & fault current was 14.5km & 11.2kA respectively from Sagwan end. 4. With the tripping of 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-2, 220/132kV Sagwan became dead. 5. As per SCADA, change in demand of approx. 170MW in Haryana control area is observed. 6. At 01:26hrs, supply to 220/132kV Sagwan was normalized with the charging of 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-1.	80
7	GD-1	1) 220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt-1	UTTAR PRADESH	UPPTCL	7-Sep-22	7-Sep-22	02:12	01:28	1. 220kV Bahraich is connected to Sohawal(PG) & Balrampur(UP) S/s at 220kV level. 220kV Balrampur is further connected to 400/220kV Gonda(UP) at 220kV level which is further connected to 220kV Gonda S/s. 2. During antecedent condition, 220kV Gonda_400 -Balrampur ckt & 220kV Gonda_400-Gonda220 ckt was already out, these both lines tripped at 00:08hrs. 3. As reported, at 00:44hrs, 220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt tripped on R-N phase to earth fault, fault occurred due to snapping of jumper, fault distance was 72.4km (66%) from Bahraich end. As per PMU, R-N phase to earth fault with unsuccessful A/R operation is observed. 4. At the same time, 220kV Bahraich-Balrampur (UP) Ckt also tripped. 5. Due to tripping of both the lines, 220/132/33kV S/s became dead. 6. As per SCADA, change in demand of approx. 100MW in UP control area is observed. 7. Restoration was done after approx. 88min via path Gonda220-Gonda400-Balrampur-Bahraich.	80
8	GI-2	1) 400/220 kV 240 MVA ICT 3 at Muradnagar_2(UP) 2) 400 KV Muradnagar_2-Mathura (UP) Ckt-1 3) 400 KV Dadri(NT)-Muradnagar_2(UP) (PG) Ckt-1 4) 400KV Bus 2 at Muradnagar_2(UP) 5) 400/220 kV 240 MVA ICT 1 at Muradnagar_2(UP) 6) 400/220 kV 315 MVA ICT 2 at Muradnagar_2(UP) 7) 400KV Bus 1 at Muradnagar_2(UP)	UTTAR PRADESH	POWERGRID, UPPTCL	7-Sep-22	7-Sep-22	22:58	01:33	1. 400/220kV Muradnagar_2(UP) have one & half breaker bus scheme at 400kV side. During antecedent condition, 400kV line to Mathura & Dadri(NTPC) were connected to 400kV Bus-1 and 400/220kV 240MVA ICT-1 & 3, 400/220kV 315MVA ICT-2 and 63MVAr bus reactor were connected at 400kV bus-2. 2. At 21:25:51hrs, B-N phase to earth fault occurred on 400 KV Muradnagar_2-Mathura (UP) Ckt, fault distance & fault current were ~60km & ~3.9kA from Muradnagar_2(UP) end and ~79km & ~3.2kA from Mathura end. As per PMU at Dadri Thermal(NTPC), B-N phase to earth fault with delayed clearance in 320ms is observed. 3. On this fault, line CB from Mathura end and Tie CB at Muradnagar_2 end opened but Main CB at Muradnagar_2 end didn't open. 4. As Main CB at Muradnagar_2 end of 400 KV Muradnagar_2-Mathura (UP) Ckt didn't open, its LBB operated and all the Main CBs connected at 400kV Bus-1 opened. 5. At the same time, Bus bar protection of 400kV Bus-2 at Muradnagar_2(UP) also operated. As reported, current in PU1 & PU2 of both the 400/220kV 240MVA ICT-3 increased which led to the operation of bus bar-2 protection. 6. As both the 400kV Bus tripped, 400kV Muradnagar_2(UP) became dead. 7. As per SCADA, no change in demand of UP is observed.	320
9	GD-1	1) 220 KV FARIDABAD(NT)- PALLA(HV) (PG) CKT-1 2) 220 KV FARIDABAD(NT)- PALLA(HV) (PG) CKT-2 3) 220 KV Palla - PALLI CKT-1 4) 220 KV Palla - PALLI CKT-2	HARYANA	POWERGRID, HVPNL	9-Sep-22	9-Sep-22	01:50	01:34	1. As reported, at 00:16 hrs, R phase PT of 220 kV bus no 1 was damaged at 220 kV Palla substation, which led to operation of bus bar protection. However, 220kV lines connected to both the buses tripped. 2. As per PMU at Ballabhgarh (PG), R-N phase to earth fault which cleared within 120ms is observed. 3. As per SCADA, load loss of ~135MW occurred in Haryana control area.	120

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)	Fault Clearance time (in ms)
	(GD-I to GD-V)				Date	Date	Time			
10	GD-1	1. 130 MW UNIT 1 at Dulhasti(NHPC) 2. 130 MW UNIT 2 at Dulhasti(NHPC) 3. 130 MW UNIT 3 at Dulhasti(NHPC)	UTTAR PRADESH	NHPC	10-Sep-22	10-Sep-22	13:22	00:35	1. In antecedent condition, 130MW Unit-1, 2 &3 were generating total ~390MW. 2. As reported, at 12:47 hrs, due to missing of feedback signal of water intake system, all the three running units tripped on operation of quick shutdown relay. 3. Accordingly, the event "UCB Discordance fault QSD operated" has been registered in SCADA event logger. 4. As per PMU, no fault is observed. 5. As per SCADA, generation loss of approx. 390MW occurred at Dulhasti HEP.	NA
11	GD-1	1) 220 KV Bhadla(PG)-CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur) (Cleansolar_Jodhpur) Ckt-1 2) 765 KV Ajmer-Bhadla_2 (PG) Ckt-1, 3) 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-2 4) 765 KV Fatehgarh_II(PG)-Bhadla(PG) (FBTL) Ckt-1 5) 765 KV Bikaner-Bhadla_2 (PG) Ckt-1	RAJASTHAN	Cleansolar_Jodhpur, POWERGRID	11-Sep-22	12-Sep-22	12:42	00:20	1. At 12:22:02hrs, Y-B phase to phase fault occurred on 220kV Bhadla- Clean Solar Jodhpur ckt due to vegetation issue (a tree branch near to the line got fire and due to its flame Y-B fault occurred). As per DR received from POWERGRID end, fault current was ~17kA. As per PMU, Y-B phase to phase voltage which cleared within 120ms is observed. 2. During the fault, phase voltage at other RE stations went below 0.85pu. As voltage dropped below 0.85pu, almost all the RE stations dropped their MW on LVRT operation. 3. As per PMU plots of MVAR of RE station, MVAR support is also not observed from most of the RE inverters during voltage dip on fault. 4. It is observed that voltage recovered to its normal value after clearing of fault within 120ms but MW of most of the RE stations didn't recover to its 90% of antecedent value in defined time (as per LVRT operation). 5. Due to significant drop in MW and inadequate MVAR support from RE stations, rise in voltage is observed at ISTS RE pooling stations. Over voltage in the line of the order of 1.07-1.09pu is observed. 6. Further after approx. 16-22secs, four (04) 765kV lines i.e., 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-2, 765 KV Fatehgarh_II(PG)-Bhadla(PG) (FBTL) Ckt-1, 765 KV Bikaner-Bhadla_2 (PG) Ckt-1 & 765 KV Ajmer-Bhadla_2 (PG) Ckt-1 tripped on over voltage stage-1 protection operation. 7. As per SCADA, drop of approx. 3800MW solar generation connected at Bhadla(PG), Bhadla2(PG), Bikaner(PG), Fatehgarh2(PG) & Fatehgarh1 observed.	120
12	GD-1	1) 220 KV Sarsawan(UP)-Khodri(UK) (UP) Ckt-1 2) 30 MW Khodri - UNIT 1 3) 30 MW Khodri - UNIT 2 4) 30 MW Khodri - UNIT 4 5) 60 MW Chibro - UNIT 1 6) 60 MW Chibro - UNIT 2 7) 60 MW Chibro - UNIT 3 8) 220 KV Khodri-Chibro(UK) ckt-1 9) 220 KV Khodri-Chibro(UK) ckt-2	UTTRAKHAND	PTCUL, UPPTCL	11-Sep-22	11-Sep-22	19:14	01:21	1. During antecedent condition, 60MW Unit-1, 2 & 3 at Chibro HEP and 30MW Unit-1, 2 & 4 at Khodri HEP were running. 2. As reported, at 17:53:35hrs, 220 KV Sarsawan(UP)-Khodri(UK) (UP) Ckt-1 tripped from Sarsawan end only, on R-N phase to earth fault. As per PMU, R-N fault with delayed clearance in 440ms is observed. 3. Further after approx. 30sec, while charging 30MW Unit-3 at Khodri HEP, its CB got blasted. 4. At the same time, 220 KV Khodri-Chibro(UK) ckt-1 & ckt-2 and 220kV Khodri-Jhajra ckt tripped from Chibro & Jhajra end respectively. 5. Due to tripping of 220 KV Khodri-Chibro(UK) ckt-1 & ckt-2, 60MW Unit-1, 2 & 3 at Chibro HEP tripped due to loss of evacuation path. At the same time, 30MW Unit-1, 2 & 4 at Khodri HEP also tripped as it operates in tandem with Chibro HEP. 6. With the loss of generation at Chibro HEP & Khodri HEP, 220kV Khodri S/s became dead which further resulted in loss of supply to 220/132kV Giri S/s via 220kV Khodri-Giri Ckt-1 & 2. 7. As per SCADA, change in generation of approx. 215MW in Uttarakhand and change in demand of approx. 130MW of HP control area is observed.	440
13	GD-1	1) 70 MW Dhauliganga U-1 2) 70 MW Dhauliganga U-2 3) 70 MW Dhauliganga U-3 4) 70 MW Dhauliganga U-4 5) 40 MW Tanakpur U-1 6) 40 MW Tanakpur U-2 7) 40 MW Tanakpur U-3 8) 220 kV Dhauliganga – CB Ganj(UP) 9) 400kV CB Ganj(UP)-Bareilly(PG) ckt-1 10) 315 MVA ICT 1 at CB Ganj(UP) 11) 315 MVA ICT 2 at CB Ganj(UP) 12) 315 MVA ICT 3 at CB Ganj(UP) 13) 400/220kV 315MVA ICT-1 at Kashipur(Utt) 14) 400/220kV 315MVA ICT-2 at Kashipur(Utt)	Uttar Pradesh, Uttarakhand	UPPTCL, NHPC, PTCUL	13-Sep-22	13-Sep-22	20:05	00:22	1. As reported, at 19:43hrs during charging of 400kV CB Ganj-Unnao ckt-2 (line was earlier under shutdown), heavy sparking occurred. In view of precaution, 400kV CB Ganj (UP)-Bareilly (PG) ckt-1 and 315 MVA ICT 1, 2 & 3 at CB Ganj (UP) was hand tripped. 2. At the same time, 220kV CB Ganj-Shahjhanpur ckt tripped due snapping of jumper between tower location no 236-237 and 220kV CB Ganj-Dhauliganga ckt tripped on DT received from Dhauliganga end on Under voltage. 220kV CB Ganj-Dohna ckt also tripped from Dohna end only in Z-3. 3. During same time, 70MW Unit-1, 2, 3 & 4 at Dhauliganga (NHPC) and 40MW Unit-1, 2 & 3 at Tanakpur (NHPC) tripped on under voltage. 4. 220kV Pantanagar usually draw power from 400/220kV CB Ganj(UP) and part load from 400kV Kashipur. After outage of 400/220kV ICTs at CB Ganj(UP), 220kV Dhauliganga HEP & 220kV Tanakpur HEP, it started drawing power from 400/220kV Kashipur(Utt) which resulted in over loading of 400/220kV ICT-1&2 at Kashipur(Utt) and subsequently both the ICTs tripped on O/C protection operation. 5. As per PMU, no fault observed in system. 6. As per SCADA, load loss of approx. 500MW occurred in UP control area and generation loss of approx. 275MW at Dhauliganga HEP & 100MW at Tanakpur HEP occurred.	NA
14	GD-1	1) 220kV Bhakra – Ganguwal-1 2) 220kV Bhakra – Ganguwal-2 3) 220kV Bhakra – Ganguwal-3 4) 220/66KV 150MVA ICT at Bhakhra Left 5) 126 MW Bhakra Left Unit 5 6) 126 MW Bhakra Left Unit 4 7) 126 MW Bhakra Left Unit 3	Punjab	PSTCL, BBMB	14-Sep-22	14-Sep-22	16:33	00:27	1. 220/132kV Bhakhra Left (BBMB) S/s have double main us scheme. However, during antecedent condition, all the elements were connected at 220kV Bus-1 and 220kV Bus-2 was not in service. As reported by Bhakhra (BBMB) Power House, they keep only one bus in service at a time. Exact reason of the same is not reported. 2. At 16:06 hrs on 14th Sept22, during attending DC leakage fault in Unit-2, bus bar protection of bus-1 operated which further led to the tripping of all connected elements. 3. As per SCADA, generation loss of approx. 375MW occurred at Bhakhra Left Power House due to tripping of 126MW Unit-1, 2 & 3 and load loss of approx. 120MW occurred in Punjab control area.	80

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)	Fault Clearance time (in ms)
					Date	Date	Time			
15	GD-1	1) 765 KV Fatehgarh_II(PG)-Bhadla(PG) (FBTL) Ckt-1 2) 220 KV Fatehgarh_II(PG)-AHEJ2L PSS HB_FGRAH_PG (AHEJ2L) (AHEJ2L) Ckt-1 3) 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1	Rajasthan	POWERGRID, AHEJ2L, AHEJ3L	17-Sep-22	17-Sep-22	10:58	00:44	1. At 10:14:29:840hrs, R-N phase to phase fault occurred on 220kV Fatehgarh2- AHEJ2L ckt due to blast of R-ph CT at Fatehgarh2 end. As per PMU, R-N phase to earth fault which cleared within 120ms is observed. 2. On this fault, 220 KV Fatehgarh_II(PG)-AHEJ2L PSS HB_FGRAH_PG (AHEJ2L) (AHEJ2L) Ckt-1 tripped. At the same time, 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1 tripped from AHEJ3L end only. 3. Due to tripping of aforementioned lines, RE generation of AHEJ2L & AHEJ3L total 560MW lost. 4. During the fault, phase voltage at other RE stations went below 0.85pu. As voltage dropped below 0.85pu, almost all the RE stations dropped their MW on LVRT operation. However, active power (MW) of few of the RE stations didn't recover after clearance of fault within defined time(as per LVRT). 5. As per SCADA, total drop in solar generation of approx. 1566MW(including AHEJ2L & AHEJ3L generation) is observed during the event. 6. Due to significant drop in MW, rise in voltage is observed at ISTS RE pooling stations and further after 5sec, 765KV Fatehgarh_II(PG)-Bhadla(PG) (FBTL) Ckt-1 tripped from Bhadla end on over voltage stage-1 protection.	120
16	GI-2	1) 400kV Baghpat - Saharanpur (PG) ckt 2) 400kV Baghpat -Kaithal (PG) ckt 1 3) 400kV Baghpat-Meerut (PG) ckt 2 4) 400kV Bus-1 at Baghpat(PG) 5) 500 MVA ICT –II at Baghpat(PG)	UTTAR PRADESH	POWERGRID	18-Sep-22	18-Sep-22	15:37	04:18	1. As reported by CPCC NR-1, Meerut- Baghpat ckt2 tripped at 11:19 hrs on R-N fault and all elements connected to Bus-1 tripped along with it. 2. However, as per observation from PMU of 400kV Baghpat- Meerut ckt 2, R-N fault has taken place and it got tripped at 11:19:14.160 hrs after auto-reclose operation. Again at 11:19:15:580 hrs, R-N fault occurred in system with fault current of approx. 4kA (as per PMU). 3. On R-N fault at 11:19:15:580 hrs, all the elements connected at 400kV Bus-1 (400kV Baghpat -Kaithal ckt 1, 500 MVA ICT –II at Baghpat & 400kV Baghpat - Saharanpur ckt) tripped.	80
17	GD-1	1) 220 KV Amritsar(PG)-Verpal(PS) (PSTCL) Ckt-1 2) 220 KV Amritsar(PG)-Verpal(PS) (PSTCL) Ckt-2 3) 220kV Bus-1 at Verpal(PS) 4) 220kV Bus-2 at Verpal(PS) 5) Verpal-Wadala (PS) Ckt 1 6) Verpal-Wadala (PS) Ckt 2 7) Verpal-Patti (PS) Ckt 1 8) Verpal-Patti (PS) Ckt 2	Punjab	POWERGRID, PSTCL	18-Sep-22	18-Sep-22	13:45	01:30	1. As reported, at 12:15hrs, R-N phase to earth fault occurred due to snapping of R-ph jumper of 220kV Bus-2 at Verpal S/s. 2. On this bus fault, bus bar protection operated at Verpal S/s. However, all the elements connected at 220kV Bus 1 & 2 tripped during the event and 220/132kV Verpal S/s became dead. 3. As per PMU, R-N phase to earth fault which cleared within 100ms is observed. 4. As per SCADA, load loss of approx. 150MW occurred in Punjab Control area.	80
18	GD-1	1) 400 KV Azamgarh-Gorakhpur (UP) Ckt-1 2) 400 KV Gorakhpur(PG)- Gorakhpur(UP) (PG) Ckt-2 3) 400 kV Bus-2 at Gorakhpur(UP) 4) 400/220 kV 500 MVA ICT 1 at 5) Gorakhpur(UP) 6) 400/220 kV 315 MVA ICT 2 at 7) Gorakhpur(UP) 8) 220kV Gorakhpur-Deoria ckt 9) 220kV Gorakhpur-Hata ckt-1 10) 220kV Gorakhpur-Hata ckt-2	Uttar Pradesh	UPPTCL, POWERGRID	19-Sep-22	19-Sep-22	19:07	00:17	1. 400/220kV Gorakhpur (UP) have double main transfer bus scheme. During antecedent condition, 400 KV Gorakhpur(PG)- Gorakhpur(UP) (PG) Ckt-2, 400 KV Azamgarh-Gorakhpur (UP) Ckt-1 & 400/220 kV 500 MVA ICT 1 were connected at 400kV Bus-2 and 400 KV Gorakhpur(PG)-Gorakhpur(UP) (PG) Ckt-1 & 400/220 kV 315 MVA ICT 2 were connected at 400kV Bus-1. 400/220kV 240MVA ICT-3 was under shutdown and 400 KV Azamgarh-Gorakhpur (UP) Ckt-1 tripped at 17:10 hrs on phase to earth fault. 2. As reported, at 18:50hrs, while charging 400 KV Azamgarh-Gorakhpur (UP) Ckt-1, Y-N phase to earth fault occurred. On this fault, line tripped from Gorakhpur (PG) end and distance protection at Gorakhpur (UP) also initiated tripping command but CB didn't open. 3. As CB of 400 KV Azamgarh-Gorakhpur (UP) Ckt-1 didn't open, LBB of its CB operated which led to tripping of 400 KV Gorakhpur(PG)-Gorakhpur(UP) (PG) Ckt-2 & 400/220 kV 500 MVA ICT 1 and bus coupler opened. 4. With the tripping of aforementioned elements, loading of 400/220 kV 315 MVA ICT 2 at Gorakhpur (UP) increased. At the same time, 220kV Gorakhpur-Deoria ckt along with 132kV feeders at 220/132kV Gorakhpur (UP) tripped on SPS operation. 5. Further after approx. 5secs, 400/220 kV 315 MVA ICT 2 at Gorakhpur (UP) tripped on over current protection operation. 6. Further after~ 600ms (as per SCADA SOE), 220kV Gorakhpur-Hata ckt-1&2 also tripped (as reported by SLDC-UP, these both line tripped on SPS operation).	80
19	GD-1	1) 220 kV AHEJ4L PSS 2 – Adani Renewable Solar park (AHEJ4L) ckt	Rajasthan	AHEJ4L	21-Sep-22	21-Sep-22	10:15	01:15	1. As reported at 09:00 hrs, while doing relay setting modification work at AHEJ4L PSS-2 S/s, 220 kV AHEJ4L PSS 2 – Adani Renewable Solar Park (AREPRL) Ckt tripped due to relay mall-operation. 2. As per PMU, no fault is observed. 3. As per SCADA, generation loss of approx. 309MW occurred at AHEJ4L PSS-2.	NA
20	GI-2	1) 400KV Sikar-Bikaner-1 2) 400KV Sikar-Bikaner-2 3) 400 KV Bus-1 at Sikar 4) 400KV Sikar-Agra-1	Rajasthan	POWERGRID	22-Sep-22	22-Sep-22	02:29	01:41	1. During antecedent condition, 400KV Sikar-Bikaner ckt-1&2 were charged from Bikaner end only. 2. At 00:48, as reported 400KV Sikar-Agra-1 was opened from Agra end on voltage regulation. DT received at Sikar end after hand tripping of line from Agra end. However, Main CB didn't open at Sikar end which led to the LBB protection operation of Main CB of 400KV Sikar-Agra-1 at Sikar end. 3. Due to LBB protection operation, all the Main CBs connected at 400kV Bus-1 at Sikar opened. 4. As per PMU, no fault observed during the event	NA

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)	Fault Clearance time (in ms)
					Date	Date	Time			
21	GD-1	1) 220 KV Chamera_3(NH)-Chamba(PG) (PG) Ckt-1 2) 220 KV Chamera_3(NH)-Chamba(PG) (PG) Ckt-2 3) 77MW Chamera-3 Unit-1 4) 77MW Chamera-3 Unit-2 5) 77MW Chamera-3 Unit-3 6) 35MW Budhil Unit-1 7) 35MW Budhil Unit-2	Himachal Pradesh	POWERGRID, NHPC, HPPTCL, BUDHIL	25-Sep-22	25-Sep-22	13:25	01:10	1. 220kV Chamba-Chamera_3 ckt-1 & 2 are on the same tower. In antecedent condition, both the circuits were carrying ~220MW each. 2. As reported at 12:15 hrs, Y-N phase to earth fault occurred on both the lines due to lightening at distance ~4.5km from Chamba (PG) end. On this fault, 220kV Chamba-Chamera_3 ckt-1 tripped from both end and 220kV Chamba-Chamera_3 ckt-2 tripped from Chamera_3 end only (220kV Chamba-Chamera_3 ckt-2 successfully autoreclosed from Chamba end). 3. As per PMU, Y-N phase to earth fault which cleared within 120ms is observed. 4. Due to tripping of both the lines, 77MW Unit-1, 2 & 3 at Chamera_3 HEP (carrying total ~230MW) and 35MW Unit-1 & 2 at Budhil HEP (carrying total ~75MW) tripped due to loss of evacuation path. Generation loss of ~120MW at Lahal HEP also observed due to loss of evacuation path. 5. As per SCADA, total generation loss of ~425MW (~230MW at Chamera-III, ~75MW at Budhil HEP & ~120MW at Lahal HEP) is observed	120

Northern Regional inter regional lines tripping for Sept-22

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	Restoration		# Fault Clearance Time (>100 ms for 400 kV and 160 ms for 220 kV)	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs (YES/NO)	Other Protection Issues and Non Compliance (inference from PMU, utility details)	Suggestive Remedial Measures	Remarks
			Date	Time				Date	Time						
1	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	29-Sep-22	09:01	Nil	Phase to phase fault Y-B	NA	29-Sep-22	21:57	NA	yes	yes			As per DR submitted, Y-B phase to phase fault(75.1% from Rihand end) observed.
2	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	28-Sep-22	23:42	Nil	Y-N fault, Zone-1, Fault current 2.316kA, Dist. 36km from Rihand(UP).	NA	29-Sep-22	00:35	NA	yes	yes	PLCC and A/R operation issue		As per DR submitted, Y-N fault (35.3% from Rihand end) in system but A/R didn't operate (carrier fail, PLCC issue).
3	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	26-Sep-22	18:01	Nil	Phase to earth fault Y-N	NA	26-Sep-22	21:52	NA	yes	yes			As per DR submitted, no fault observed in system.
4	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	20-Sep-22	21:25	Nil	Phase to earth fault B-N	NA	21-Sep-22	00:21	NA	yes	yes	PLCC and A/R operation issue		As per DR submitted, B-N fault (73.5% from Rihand end) in system but A/R didn't operate (carrier fail, PLCC issue).
5	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	18-Sep-22	21:34	Nil	B-N fault, Dist. 25.2km from Rihand(UP)	NA	18-Sep-22	23:52	NA	yes	yes			As per DR submitted, Y-B phase to phase fault(71.5% from Rihand end) observed.
6	220 KV Auraiya(NT)-Mehgaon(MP) (MPSEB) Ckt-1	POWER GRID	27-Sep-22	21:56	Nil	B-N fault, Zone-1, Dist. 69.2km, Fault current 2.44kA from Auraiya end.	NA	27-Sep-22	23:10	NA	yes	yes			As per DR submitted, B-N fault observed, A/R started but A/R operation didn't complete and three phase trip occurred.
7	400 KV Varanasi-Biharshariff (PG) Ckt-1	POWER GRID	17-Sep-22	19:24	Nil	R-N fault, Dist. 309.1km, Fault current 1.396kA from Varanasi end.	NA	17-Sep-22	20:11	NA	yes	yes (after 24 hours)			As per DR submitted, R-N phase to earth fault (71.9% from Varanasi end) with unsuccessful A/R operation (permanent fault) is observed.
8	800 KV HVDC Kurukshetra(PG) Pole-2	POWER GRID	24-Sep-22	08:32	Nil	Blocked on DC differential protection at Champa end. (The NBS Current pertaining to Pole2 Lane 2 has misread leading to mal-operation of DC Differential protection).The charging attempt failed at 09:58 Hrs from Champa end. Tripped on CNAP Protection(Common Neutral Area Protection)	NA	24-Sep-22	14:26	NA	yes	yes (after 24 hours)			

 # 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	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 September 2022 - 30th September 2022

S. No.	Utility	Total No. of elements tripped	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	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	DR/EL & Tripping report needs to be submitted
2	AD HYDRO	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	
3	AHEJ2L	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	
4	AHEJ3L	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	
5	AHEJ4L	2	1	**50**	1	0	**50**	1	1	**1**	1	0	**50**	DR/EL & Tripping report needs to be submitted
6	ANTA-NT	4	2	**50**	2	0	**50**	2	0	**50**	2	0	**50**	
7	AREPRL	2	0	**0**	0	1	**0**	0	1	**2**	0	1	**0**	
8	ASEPL	2	1	**50**	1	0	**50**	1	0	**50**	1	0	**50**	DR/EL & Tripping report needs to be submitted
9	AURAIYA-NT	3	0	**0**	0	0	**0**	0	0	**3**	0	0	**0**	
10	BBMB	26	8	**31**	12	6	**60**	12	9	**71**	8	4	**36**	DR/EL & Tripping report needs to be submitted
11	CHAMERA-III-NH	2	0	**0**	0	0	**0**	0	0	**4**	0	0	**0**	
12	CLEANSOLAR_JODHPUR	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	
13	CPCC1	75	19	**25**	19	7	**28**	19	5	**5**	21	3	**29**	DR/EL & Tripping report needs to be submitted
14	CPCC2	28	0	**0**	0	11	**0**	1	10	**6**	0	3	**0**	
15	CPCC3	43	7	**16**	14	1	**33**	14	1	**6**	20	0	**47**	DR/EL & Tripping report needs to be submitted
16	DADRI-NT	3	0	**0**	0	1	**0**	0	1	**0**	1	0	**33**	
17	DHAULIGANGA-NH	1	0	**0**	0	0	**0**	0	0	**7**	0	0	**0**	
18	DULHASTI-NH	3	0	**0**	0	3	**0**	0	0	**0**	0	0	**0**	
19	FARIDABAD-NT	3	2	**67**	2	0	**67**	2	0	**8**	2	0	**67**	DR/EL & Tripping report needs to be submitted
20	FBTL	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	
21	INDIGRID	1	0	**0**	0	0	**0**	0	0	**9**	0	1	**0**	
22	JHAJJAR	1	0	**0**	0	0	**0**	0	0	**0**	1	0	**100**	DR/EL & Tripping report needs to be submitted
23	KOLDAM-NT	1	1	**100**	1	0	**100**	1	0	**10**	1	0	**100**	
24	KOTESHWAR	4	4	**100**	4	0	**100**	4	0	**100**	4	0	**100**	
25	Mega_SuryaUrja	1	1	**100**	1	0	**100**	1	0	**11**	1	0	**100**	

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

Time Period: 1st September 2022 - 30th September 2022

S. No.	Utility	Total No. of elements tripped	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		%	
26	NAPP	3	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	
27	PARBATI-III-NH	2	0	**0**	0	0	**0**	0	0	**12**	0	0	**0**	
28	RAPPA	8	7	**88**	8	0	**100**	8	0	**100**	8	0	**100**	
29	RAPPC	1	1	**100**	1	0	**100**	1	0	**13**	1	0	**100**	DR/EL & Tripping report needs to be submitted
30	SAURYA	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
31	SEWA-2-NH	5	5	**100**	5	0	**100**	5	0	**14**	5	0	**100**	
32	SLDC-DV	16	0	**0**	1	5	**9**	2	5	**18**	0	1	**0**	
33	SLDC-HP	3	0	**0**	0	1	**0**	0	1	**15**	0	0	**0**	
34	SLDC-HR	23	3	**13**	3	0	**13**	3	0	**13**	3	0	**13**	
35	SLDC-JK	13	3	**23**	13	0	**100**	13	0	**16**	13	0	**100**	DR/EL & Tripping report needs to be submitted
36	SLDC-PS	23	4	**17**	13	2	**62**	13	2	**62**	21	0	**91**	
37	SLDC-RS	50	4	**8**	20	0	**40**	19	0	**17**	20	0	**40**	
38	SLDC-UK	22	0	**0**	0	10	**0**	0	12	**0**	0	0	**0**	
39	SLDC-UP	149	43	**29**	46	15	**34**	45	22	**18**	48	5	**33**	DR/EL & Tripping report needs to be submitted
40	STERLITE	1	0	**0**	0	0	**0**	0	0	**0**	0	1	**0**	
41	TANAKPUR-NH	2	0	**0**	0	0	**0**	0	0	**19**	0	0	**0**	
42	TANDA-NT	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	
43	TATAPOWER	1	0	**0**	0	0	**0**	0	0	**20**	1	0	**100**	DR/EL & Tripping report needs to be submitted
44	UNCHAHAR-NT	2	1	**50**	1	0	**50**	1	0	**50**	1	0	**50**	
Total in NR Region		**539**	**122**	**23**	**173**	**63**	**36**	**173**	**70**	**37**	**189**	**19**	**36**	

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

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 NRLDC to SE (R&A)		
	Vishnuprayag Unit#2	06/04/2021	06/04/2021			
	Vishnuprayag Unit#3	06/04/2021	06/04/2021			
	Vishnuprayag Unit#4	05/02/2021	05/02/2021			
10	**BBMB**					

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