सत्यमेव जयते

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

संख्या: उ.क्षे.वि.स./ प्रचालन/106/01/2022/ **दिनांक**: 09.09.2022

विषय: **उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की** 198$^{वी}$ **बैठक का कार्यवृत**|

Subject: Minutes of 198th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 198$^{वीं}$ **बैठक दिनांक** 17.08.2022 **को आयोजित की गयी थी। उक्त बैठक का कार्यवृत्त उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट** http://164.100.60.165 **पर उपलब्ध है। यदि कार्यवृत पर कोई टिप्पणी हो तो कार्यवृत जारी करने के एक सप्ताह के अन्दर इस कार्यालय को भेजें**|

198th meeting of the Operation Co-ordination Sub-Committee of NRPC was held on 17.08.2022. The Minutes of this meeting has been uploaded on the NRPC website http://164.100.60.165. Any comments on the minutes may kindly be submitted within a week of issuance of the minutes.

संलग्नक: यथोपरि

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(सौमित्र मजूमदार)
अधीक्षण अभियंता (प्रचालन)

सेवा में,

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

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उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 198वीं बैठक का कार्यवृत्त

198th meeting of OCC of NRPC was held on 17.08.2022 through video conferencing.

खण्ड-क: उ.क्षे.वि.स. **PART-A:NRPC**

1. Confirmation of Minutes

Minutes of 197th OCC meeting was issued on 05.08.2022. OCC confirmed the minutes.

In regard to agenda No. 8, UPSLDC representative requested OCC forum to modify para 8.50 as mentioned below:

"8.50. In the meeting (197th OCC), NRPC representative informed that UPSLDC has submitted the updated status of Unchahar Islanding scheme as per the deliberation held in the review meeting held on 07.07.2020. Moreover, order for system study of Agra-Lalitpur IS has been placed on CPRI."

to be replaced with

"8.50. In the meeting (197th OCC), NRPC representative informed that UPSLDC has submitted the updated status of Unchahar Islanding scheme as per the deliberation held in the review meeting held on 07.07.2020 and also submitted the revised document for the scheme. Moreover, order for system study of Agra-Lalitpur IS has been placed on CPRI."

2. Review of Grid operations of July 2022

2.1. Anticipated vis-à-vis Actual Power Supply Position (Provisional) for July 2022

Reasons submitted by states for significant deviation of actual demand from anticipated figures during the month of July 2022 are as under:

- **Delhi**

The negative variation in peak demand and energy consumption was due to rain and drop in temperature in 1st fortnight of July-2022.

- **Punjab**

It is intimated that actual maximum demand and actual energy requirement are less as compared to anticipated maximum demand and anticipated energy requirement respectively because of less demand of agricultural load and all other categories due to heavy rainfall in the state of Punjab during month of July 2022.

- **Himachal Pradesh**

The actual energy requirement in respect of Himachal Pradesh came on lower side than anticipated due to heavy rains in the state and moreover, some major industries like M/s Ambuja Cements Plant Unit Suli and Rauri and M/s Ulrtratech Bagha were under planned shutdown for some days during July, 2022.

- **Haryana**

Variation between actual and anticipated demand (in MW) is within 3% and the variation between actual and anticipated energy consumption (MUs) for July-2022 is near about 7% due to heavy rainfall which has resulted in to the less Agricultural load.

- **Rajasthan**

The Energy consumption & Peak Demand decreased by 15.8% & 16.6% respectively w.r.t. Anticipated Energy requirement & Anticipated Peak Demand for July '2022 because of demand decreased. This recorded Energy consumption & Peak Demand is approx. 11% lower w.r.t. July' 2021 and this was due to wide spread rains in the state during the month of July' 2022.

2.2. **Power Supply Position for NCR:**

The Sub-Committee was informed that the NCR Planning Board (NCRPB) is closely monitoring the power supply position of National Capital Region. Monthly power supply position for NCR till the month of July 2022 was enclosed in the agenda and same was discussed in the meeting.

3. Maintenance Programme of Generating units and Transmission Lines

The maintenance programme of generating units and transmission lines for the month of September 2022 was deliberated in the meeting on 16.08.2022.

4. Planning of Grid Operation

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

The updated anticipated Power Supply Position for September 2022 is as below:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	180	420	No Revision submitted
	Requirement	150	410	
	Surplus / Shortfall	30	10	
	% Surplus / Shortfall	20.0%	2.4%	
DELHI	Availability	3864	6900	16-Aug-22
	Requirement	3705	6900	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	159	0	
	% Surplus / Shortfall	4.3%	0.0%	
HARYANA	Availability	5490	11660	No Revision submitted
	Requirement	6860	12160	
	Surplus / Shortfall	-1370	-500	
	% Surplus / Shortfall	-20.0%	-4.1%	
HIMACHAL PRADESH	Availability	1128	1710	06-Aug-22
	Requirement	1042	1695	
	Surplus / Shortfall	86	15	
	% Surplus / Shortfall	8.3%	0.9%	
J&K and LADAKH	Availability	1680	3490	No Revision submitted
	Requirement	1580	2660	
	Surplus / Shortfall	100	830	
	% Surplus / Shortfall	6.3%	31.2%	
PUNJAB	Availability	7506	14000	16-Aug-22
	Requirement	7870	14000	
	Surplus / Shortfall	-364	0	
	% Surplus / Shortfall	-4.6%	0.0%	
RAJASTHAN	Availability	8680	18610	16-Aug-22
	Requirement	7700	14000	
	Surplus / Shortfall	980	4610	
	% Surplus / Shortfall	12.7%	32.9%	
UTTAR PRADESH	Availability	15000	25500	12-Jul-22
	Requirement	14700	25500	
	Surplus / Shortfall	300	0	
	% Surplus / Shortfall	2.0%	0.0%	
UTTARAKHAND	Availability	1302	2110	08-Jul-22
	Requirement	1290	2160	
	Surplus / Shortfall	12	-50	
	% Surplus / Shortfall	0.9%	-2.3%	
NORTHERN REGION	Availability	44831	77500	
	Requirement	44897	73000	
	Surplus / Shortfall	-66	4500	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	% Surplus / Shortfall	-0.1%	6.2%	

5. Submission of breakup of Energy Consumption by the states

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

State / UT	From	To
Delhi	Apr-2018	Jul-2022
Haryana	Apr-2018	Jun-2022
Himachal Pradesh	Apr-2018	Jun-2022
Punjab	Apr-2018	Mar-2022
Rajasthan	Apr-2018	Jun-2022
Uttar Pradesh	Apr-2018	Jul-2022
Uttarakhand	Apr-2018	Mar-2022

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

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

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

6.2. In 195th OCC, SLDCs were requested to again to coordinate with respective Transmission utilities of states/UT's and submit details about the updated status of Down Stream network by State utilities from ISTS Station (enclosed as ***Annexure-A-I.I***) before every OCC meeting.

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

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

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

7.5. A meeting was also taken by Honorable Cabinet Minister (Power, New & Renewable Energy) on 07.10.2021 wherein emphasis was given on PSDF funding for Islanding schemes and DPR submission for the same. MoM has been issued and copy of the same was enclosed as Annexure-A.II of 189th OCC agenda.

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

7.7. 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.

7.8. 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.

7.9. 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.

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

7.11. 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.

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

7.13. UPSLDC vide letter 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.

7.14. HPSLDC vide lett er 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.

7.15. 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.

7.16. NRLDC representative informed that report received from Rajasthan regarding the Jodhpur-Barmer-Rajwest 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.

7.17. 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.

7.18. 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.

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

7.20. 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.

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

7.22. 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.

7.23. 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.

7.24. 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.

7.25. In 192nd OCC, UPSLDC informed that they have received techno-commercial offer from CPRI for both the islanding schemes of UP and accessing the inputs from CPRI they will be conveying a meeting in last week of February 2022.

7.26. NRLDC representative informed modelling data on PSSE software received from Rajasthan has not been modelled for islanding scheme. Further, NRLDC representative asked Rajasthan SLDC to send their team next week for modelling the data on PSSE software.

7.27. MS, NRPC asked Uttarakhand SLDC to expedite the study they are conducting to access the feasibility of Dehradun islanding scheme.

7.28. NRPC representative informed that a meeting was convened by HPSLDC with officials of NRPC Sectt., NRLDC, HPSEBL, & HPPTCL on 11.02.2022. 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. It was decided to review the status in another meeting in the first week of March 22. It was intimated that HPSLDC has written letter dt. 14.02.2022 to HPSEBL, & HPPTCL.

7.29. Punjab SLDC also informed that they will be convening a meeting with STU within a week to track the progress.

7.30. In meeting (193rd OCC), NRPC representative informed forum that HPSLDC convened a meeting on 4th March 2022 wherein they presented the results of static and dynamic study conducted by them. NRLDC suggested that dynamic data used by HPSLDC is common data and it was decided that they will use data of particular generators and then apprise about the same.

7.31. UPSLDC also convened a meeting on 7th March 2022 wherein they informed that CPRI has submitted the offer with a completion target of 5 months. It was also discussed that as there are two islanding schemes in UP control area hence it was suggested that CPRI may be asked to do it in 2 parts preferably 2.5 months each for both the islanding scheme.

7.32. UPSLDC representative informed that CPRI would not be able to bifurcate the time separately for both the islanding scheme and acceptance is under consideration by the management.

7.33. HPSLDC representative informed that they have communicated to all generators for providing dynamic data, and only reply from Karcham Wangtoo has been received from till date.

7.34. Rajasthan representative informed that next week they will send their team to NRLDC for modelling the data on PSSE software.

7.35. J&K representative informed that load has been identified and no further update. MS, NRPC asked J&K representative expedite the study work.

7.36. Further, MS NRPC suggested that states shall coordinate with NRPC and NRLDC officials for carrying out the study.

7.37. Further, 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.

7.38. In the 194th OCC, Punjab representative informed that CPRI has asked for PSSE file for dynamic study which is being coordinated with NRLDC. STU has given timeline of 6 months for implementation after CPRI study.

7.39. MS, NRPC along with NRLDC have desired that all states of northern region where islanding scheme is to be implemented shall convene meeting with the officials of NRPC and NRLDC wherein the study requirements can be discussed.

7.40. OCC forum was of opinion that all generating units (especially 660MW units) shall make an effort to ensure successful household operations. UP representative was requested to expedite the implementation work of Unchahar-Lucknow Islanding scheme after analyzing load-generation balance and conducting steady state study.

7.41. Further, OCC forum was of view that states shall go for implementation of islanding scheme after steady state study along with load generation balancing and dynamic study, if desired, may be carried out in later stage.

7.42. In the 195th OCC, NRLDC representative intimated that steady state study for Rajasthan islanding scheme has been completed. It was decided that Rajasthan may go ahead for implementing the scheme.

7.43. NRPC representative informed that a sub-group will be formulated shortly that would review all proposed islanding schemes of NR and assess the reason for delay.

7.44. In the 196th OCC, MS NRPC asked UP representative to take up the matter with CPRI for Agra islanding scheme and ask them to complete the work in one month time from the date of acceptance of offer by CPRI.

7.45. UP representative informed that steady state study along with load generation balancing is complete for Unchahar-Lucknow Islanding scheme and the same would be submitted to NRLDC in one week time.

7.46. Rajasthan representative informed that for Jodhpur-Barmer-Rajwest and Suratgarh islanding scheme work of DPR preparation is under progress and same would be submitted to NLDC to avail PSDF funding before next OCC meeting.

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

7.48. MS NRPC asked Himachal Pradesh representative to coordinate with NRLDC officials to converge the study carried out by them.

7.49. Further, MS NRPC also asked Punjab representative to coordinate with NRLDC officials in order to converge the steady state study carried out by them.

7.50. In the 197th OCC, NRPC representative informed that UPSLDC has submitted the updated status of Unchahar Islanding scheme as per the deliberation held in the review meeting held on 07.07.2020. Moreover, order for system study of Agra-Lalitpur IS has been placed on CPRI.

7.51. In regard to Delhi Islanding scheme, NRPC representative informed that as per the deliberation held in the review meeting held on 13.07.2020, response from Delhi Discoms is awaited regarding whether trippings through ADMS system can be facilitated for Delhi Islanding scheme.

7.52. MS, NRPC expressed apathy over no significant progress in implementation of Delhi Islanding Scheme since last 18 months. He suggested that in view of allocation of Dadri-II to Haryana and non-scheduling of Jhajjar and Dadri-II due to high cost, the proposed islanding may not survive. Therefore, it would be better to have two small islands – one with GTs and the other with Bawana. Mostly, these plants operate and therefore survival chances for islands would be more. Moreover, these islands could be controlled through UFRs at 220kV level by STU and not at 33kV by Discoms as envisaged in proposed scheme. It was suggested that DTL may bring out proposal for further discussion at NRPC Sectt and NRLDC level.

7.53. NRPC representative informed that HPSLDC has been requested to provide load wise details for the islanding scheme finalized by them.

7.54. In the meeting (198th OCC), NRPC Sectt representative informed forum that Delhi SLDC has been asked to submit generation data for last 2 years (96 blocks) of power stations in Delhi control area and they need to expedite the submission of requisite data. Further, forum was of view that after submission of data, a meeting may be conducted between NRPC Sectt., NRLDC and Delhi SLDC to review the same.

7.55. In regard to Unchahar Islanding scheme, NRPC Sectt representative informed that complete proposal has been received. On analysis of same, it is felt that logic needs to be discussed and NTPC Unchahar needs to confirm whether machines can be operated in FGMO mode in islanding operation. Further, NRPC Sectt representative informed that they would be their sharing their observations with UPSLDC/NTPC and thereafter, comments/confirmation of NTPC on the same may kindly be communicated to NRPC Sectt.

7.56. NRPC Sectt representative intimated that based on the discussion in the 56th NRPC meeting for Rajwest and Suratgarh islanding schemes, RVPN was asked to review the Load in Suratgarh and Rajwest islands and reduce it so that there may be some adequate gap between island load and generation.

7.57. NRPC Sectt representative apprised that Punjab has submitted the details and same has been scrutinized. Observations of NRPC Sectt have been shared with Punjab and they may kindly submit their response on the same. Punjab representative mentioned that reply on the observations would be submitted within two-three days.

7.58. As regards to Dehradun Islnading Scheme, 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.

7.59. NRPC Sectt representative intimated that data from Himachal Pradesh has been received and same is under examination.

8. Coal Supply Position of Thermal Plants in Northern Region

8.1. In the meeting, NRPC representative apprised the forum about the coal stock position of generating stations in northern region during current month (till 09th August 2022).

8.2. Average coal stock position of generating stations in northern region, having critical stock, during first nine days of August 2022 is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd. (Days)	Actual Stock (Days)
ANPARA C TPS	1200	76.03	13	0.6
BARKHERA TPS	90	59.60	21	1.5
GOINDWAL SAHIB TPP	540	46.84	21	3.0
KHAMBARKHERA TPS	90	60.95	21	1.2
KUNDARKI TPS	90	57.80	21	2.7
LALITPUR TPS	1980	74.07	21	2.7
MAQSOODPUR TPS	90	56.47	21	1.0
OBRA TPS	1094	55.80	21	2.1
PARICHHA TPS	1140	54.12	21	3.8
ROSA TPP Ph-I	1200	73.25	21	1.1
UTRAULA TPS	90	60.67	21	2.1

8.3. In the meeting, above mentioned generating stations were requested to take adequate measures.

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

9.1. In the meeting, Rajasthan SLDC representative presented the matter to the forum.

9.2. MS, NRPC was of view that the cited agenda may be taken up in the NRPC meeting, and CTU may be asked to deliberate on this agenda in the upcoming 'consultation meeting for evolving transmission schemes' and thereafter CTU's views may be discussed in subsequent NRPC meeting.

9.3. Further, NRLDC representative stated that Haryana and Delhi STU views shall also be taken on the cited matter.

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

10.1. NRPC representative presented the matter to the forum.

10.2. MS, PSTCL representative mentioned the revision in timeline for the augmentation of 2 Nos. 315 MVA ICTs at 400kV Nakodar as follows:

a. Augmentation of 1st 315 MVA, 400/220 kV ICT: May, 2023

b. Augmentation of 2nd 315 MVA, 400/220 kV ICT: Sep, 2023

10.3. In respect of 400kV POWERGRID Patiala (Sl. No. 4 of para 10.9 of the agenda), PSTCL representative informed that timeline for installation of additional 500 MVA ICT is May, 2023 and timeline for bays utilization work is May, 2024.

10.4. In the meeting, POWERGRID agreed to the works for Sl Nos. 2, 4, 5, 6 and 7 of para 10.9 of the agenda. Further, forum was of view that works at Sl. Nos. 1 and 3 of para 10.9 of the agenda may be deliberated in the upcoming NRPC meeting on 31.08.2022.

10.5. MS NRPC opined that entire matter shall be taken up for discussion in the 57th NRPC meeting.

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

11.1. In the meeting, JKPTCL representative presented the matter to the forum.

11.2. NRLDC representative intimated forum that augmentation of 400/220 kV GIS Amargarh (Indigrid) and augmentation of 400/220 kV New Wanpoh (PGCIL) was also discussed in 3rd NRPCTP and its extract were presented to OCC forum.

11.3. OCC forum requested JKPTCL to share the study they have carried out for transmission capacity augmentation at 400/220kV level with NRPC Sectt. and NRLDC.

11.4. MS, NRPC was of view that the cited agenda may be taken up in the NRPC meeting for deliberation with CTU and other constituents.

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

12.1. In the meeting, JKPTCL representative presented the matter to the forum.

12.2. Further, MS NRPC requested JKPTCL to share the load flow study details for the three single circuit transmission lines at Glandi Grid Sub-station to NRPC Sectt and NRLDC before 57th NRPC meeting for further analysis.

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

13.1. NRLDC representative highlighted the issue related to Power System operations in J&K/Ladakh control area.

13.2. Further, he asked JKPTCL to submit the list of 220 KV voltage level substations in their control area which are operated with only single Main and Transfer Bus scheme instead of Double Main Transfer (DMT) bus scheme as per CEA planning criteria. Bus shutdown in single Main and Transfer scheme requires shutdown of entire station which affects reliability of power supply.

13.3. As regards to para 13.2.ii of the agenda, JKPTCL representative assured to submit the latest status of AUFR settings of J&K.

13.4. For para 13.2.iii & iv of the agenda, JKPTCL representative mentioned that the status would be submitted by upcoming NRPC meeting.

13.5. For para 13.2.vi of the agenda, J&K representative informed that shortly they would plan the Mock black start exercise of Uri-I, Uri-II HEP and Lower Jhelum HEP.

13.6. For para 13.2.viii of the agenda, JKPTCL representative submitted that they will look into the requested data and would submit to NRLDC.

13.7. For para 13.2.ix of the agenda, JKPTCL representative assured to seek the details of SLDC control room in UT of Ladakh and share it with NRPC Sectt and NRLDC.

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

14.1. PTCUL representative submitted that the abovementioned matter in sub-judice before the Hon'ble CERC and may not be discussed in the OCC forum. Thus, agenda was not discussed further in the meeting.

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

15.1. MS, NRPC opined that the CTU may be asked to deliberate on this agenda in their upcoming 'consultation meeting for evolving transmission schemes' and thereafter CTU's views may be discussed in subsequent OCC meeting.

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

16.1. NRLDC representative highlighted SPS scheme was proposed in 2020 when N-1 compliance of 400/220 kV ICTs was not being considered for planning transmission system for RE evacuation.

16.2. Further, he mentioned that SPS scheme was agreed in 48th NRPC meeting but due to delay in quotation collection, the requirement of SPS has now changed and is further likely to change by the time of its implementation.

16.3. CTU representative stated LTA granted at Bhadla Pooling station is 3530 MW and the eighth ICT is planned to be operational by Dec'2022.

16.4. NRLDC representative mentioned that with the commissioning of eighth ICT, SPS requirement would not be there at 400/220 kV level at Bhadla Pooling station.

16.5. In view of the above, the forum decided that the SPS requirement at Bhadla Pooling complex may be dropped.

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

17.1. NRLDC representative highlighted that the set-points were revised for SVC installed at Powergrid Kankroli substation to minimize oscillation in the area so as to inject full Capacitive VARs.

17.2. Further, he mentioned that there has been minor revision in set-points which has been communicated by NRLDC control room to Powergrid sub-station; however, there seems to be some gap in the communication of same to Powergrid.

17.3. NRLDC representative stated that they would again review the set-points and same would be communicated to Powergrid for implementation.

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

18.1. NRPC and RVPN representatives apprised the forum about the revised Islanding Schemes for the Rajasthan Atomic Power Station (RAPS-A & B).

18.2. CTU representative confirmed that they would keep N-1 compliance at 400/220 kV RE pooling stations of POWERGRID in Northern Region (Fatehgarh-2, Bikaner, Bhadla-2).

18.3. NRLDC representative mentioned that as per the discussions held in 56th NRPC meeting, N-1 compliance at 400/220kV RE pooling stations with higher RE capacity on case-to-case basis needs to be ensured. As per the draft CEA Transmission Planning Criteria 2022, N-1 reliability criteria may be considered for ICTs at pooling stations handling RE based generation of more than 1000MW. Thus, there would not be requirement of SPS at the above-mentioned locations.

18.4. NRLDC representative further mentioned that in case ICT capacity is more than 1000 MW at RE pooling station and there is N-1 non-compliant, then SPS may be planned after agreement from all stakeholders.

18.5. In view of the above, the forum decided that there is currently no requirement of SPS at Fatehgarh-2, Bikaner and Bhadla-2 pooling stations.

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

19.1 OCC forum directed POWERGRID to refer to the minutes of meeting of 15th NRPC wherein the modalities for recovery of tariff (including O&M charges) are explicitly stated.

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

20.1 NRLDC representative submitted that the matter was discussed in previous OCC meeting and requested CTUIL to carry out studies for LC oscillation/resonance for the overcompensated lines.

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

21.1 HVPN representative informed OCC forum that they are planning to conduct a joint visit with POWERGRID in this regard, and thereafter would suggest a suitable solution accordingly.

22. Unchahar#6 (St-IV U#1)-500 MW FGD Unit PG Test. (Additional Agenda by

NTPC)

22.1 OCC forum was of view that NTPC may approach constituents for the consent of beneficiaries for full requisition.

23. DSM charges under exceptional circumstances of increased silt, cloud burst etc. (Additional Agenda by SJVN)

23.1 After discussing the matter, the OCC forum took cognizance of the fact that the issue of DSM charges under exceptional circumstances of increased silt, cloud burst, etc is genuine concern of Hydro Generators. However, OCC forum was of the view that as the matter is related to the regulations of the Central Commission, hence necessary petition may be filed by the Hydro generators before the Commission.

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

24. NR Grid Highlights for July 2022

NRLDC representative presented the NR-grid highlights for July 2022:

- Maximum energy consumption of Northern Region was 1667.96 Mus on 08th July'22 and it was 1.1 % higher than July' 21 (1650.07 Mus 07th July'21)
- Average energy consumption per day of Northern Region was 1448.09 Mus and it was 1.1 % higher than July'21 (1432.88 Mus per day)
- Maximum Demand met of Northern Region was 74143 MW on 08thJuly'22 @23:00 hours (based on data submitted by Constituents) as compared to 72935 MW on 07th July'21 @01:00 hours.

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

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

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

State	July - 2021	July - 2022	% Diff
Chandigarh	6.5	6.6	1.0
Delhi	119.6	125.0	4.6
Himachal Pradesh	29.0	32.2	11.1

Haryana	209.7	209.4	-0.1
Jammu & Kashmir	46.6	49.5	6.1
Punjab	265.0	264.3	-0.3
Rajasthan	262.6	233.7	-11.0
Uttarakhand	43.9	46.6	6.2
Uttar Pradesh	450.1	480.9	6.8
Northern region	**1432.9**	**1448.1**	**1.1**

Frequency Data Comparison

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

Detailed presentation as shared by NRLDC representative in 198 OCC meeting is attached as Annexure-B.I.

In July'22, frequency remained within IEGC band for only 73.5 % of the time. All utilities were advised to follow all the measures as discussed in previous OCC meetings. Measures were reiterated as follows:

1. Managing the demand portfolio and making prearrangements for procurement of power and ensuring portfolio balancing through STOA/RTM market segments
2. More units shall be kept on bar in order to meet the increased demand safely as well as maintaining reserves
3. Keeping sufficient coal stock and maintaining adequate reserves.
4. Restricting deviations from schedule and ensuring no under injection by the generators from schedule.
5. Advance action is required for bringing the units on bar
6. Ensure that ADMS is in service and expedite its implementation if not commissioned.
7. Ensure healthiness and availability of AUFLS and df/dt load shedding.

8. In case of inadequate margins in intrastate generators measures for emergency load regulation measures may be taken in interest of grid security.
9. Pursue generators to expedite revival of thermal units under forced outage wherever feasible.

OCC members agreed to take above actions for better frequency control.

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

Sr. No.	Outage of Hydro Plants due to High Silt Content	Installed Capacity	Total Silt Value(PPM) of Intake at which Plants under Alert mode and start reducing generation if PPM value increasing trends	Maximum Silt Value (PPM) of Intake at which machine undergo Complete Shutdown	Total Outage in the month of July 2022(in Hrs) (plant level)
1	Bairasiul HPS	180	>2500	>3000	262
2	Baspa HPS	300	>1500	>1600-1700	4
3	Budhil HPS	70	>1500	>2000	8
4	Chamera- II HPS	300	>4000	>4500	51
5	Chamera- III HPS	231	>4000	>4500	55
6	Dulhasti HPS	390	>4000	>4500	43
7	Karcham Wangtoo HPS	1045	>4000	>4500	21
8	Naptha Jhakari HPS	1500	>4000	>4500	24
9	Rampur HPS	412	Tandem with NJHPS	Tandem with NJHPS	24
10	Parbati-III HPS	520	>2500	>4000	14
11	Sainj HPS	100	>500	>1000	21
12	Salal HPS	690	>3000	>3500	25
13	Sorang HPS	100	>2500	>3000	75
14	Tanakpur HPS	94	>4500	>5000	11
15	Vishnuprayag HPS	440	>1400	>2000	5
	Total	**6664**			

It may be noted that above is only for silt outage apart from the planned silt flushing outages.

State control areas were also asked to provide details of hydro generation outages due to high silt in their state control area. All hydro plants were asked to take their units out during high silt conditions gradually and as per agreed protocol.

All concerned hydro stations were advised to regularly and timely update on the silt measurements from site and upload on portal for monitoring at NRLDC control room. It was also advised to timely intimate in case of requirement of silt flushing so that adequate time is available with NRLDC so as to take necessary actions.

All the concerned states were advised to strictly take actions and avoid over/ under drawal from Grid for safe & secure operation of the Grid.

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

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

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

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

   On 29.05.2022, complete shutdown of 220/132kV Hiranagar substation was taken by JKPTCL as there is only single bus and transfer scheme. This led to loss of generation at Sewa-II and load loss in Kathua area which could have been avoided if there were double main and transfer scheme available at 220/132kV Hiranagar substation. Same was also communicated vide NRLDC letter dated 28.06.2022. Moreover, there have also been number of other such events previously. It was also observed that when island was created to allow some generation evacuation, the island didn't survive. Telemetry is not available from most of the substations at NRLDC which is making decision making (including for island survival) difficult. Moreover, all efforts need to be made from NHPC and J&K in future to make island survive.

   In 198 OCC meeting, CE, JKPTCL Kashmir informed that in Kashmir area around 90% of substations have double main transfer scheme layout in substations.

   CE, JKPTCL Jammu informed in the meeting as well as vide email dated 18.08.2022 that all of the 220/132 kV voltage level Sub Stations of PDD-JK are being operated with only one Main and Transfer bus scheme instead of double main transfer (DMT) bus as per CEA planning criteria. Also due to

constraints of load shifting and space, the Bus arrangement of these GSS's at present cannot be changed. However, 02 No.s 220/66KV GSS recently Commissioned at Ghatti (Kathua) and IGC Samba and under Construction GSS's coming up at Nagrota (220/33 kV Level) and Chowadhi {220/132 KV Level) have double main and transfer scheme.

J&K may explore the possibility of providing double main scheme at single main and transfer substations where it is possible to enhance reliability. Current rating of transfer bus also to be checked for double main operation.

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

iii. Two stages (450 MW each) of Baglihar HEP (900 MW) operate on two different buses and are being evacuated through two 400 kV lines on each side connected to two different buses operating in disconnected manner. UT-J&K to expedite the coupling of two buses of Baghlihar stage-1 & 2 to minimize the probability of generation loss.

It was discussed that the matter may be taken up with generation wing by JKPTCL and update to be provided in NRPC meeting.

iv. Availability of automatic DR (disturbance recorder) and station event logger needs to be ensured for all the 220 kV and above stations. DR/EL and preliminary report needs to be submitted within the stipulated timelines as per IEGC. Same is also being requested regularly in OCC/ PSC meetings.

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

vi. Mock black start exercise of URI-I & URI-II HEP, Lower Jhelum HEP is yet to be conducted. In 198 OCC meeting, JKPTCL representative agreed that the issue is well known and important and the same would be taken up with SLDC

vii. Planned and under implementation reactive compensation i.e. reactor & capacitors details to be shared.

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

In 198 OCC meeting, representative from JKPTCL agreed to provide update on these issues in the upcoming 57th NRPC meeting in last week of August 2022.

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

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

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

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

Punjab

In 197 OCC meeting, Punjab SLDC representative informed that:

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

In 198 OCC meeting, NRLDC representative presented the loading of different 400/220kV ICTs. It was discussed that loading of 400/220kV Nakodar ICTs was beyond the N-1 limit (SPS implemented). Loading of other 400/220kV ICTs such as Ludhiana, Patran, Moga ICTs was also close to N-1 limits.

Punjab SLDC representative informed that:

- Reconductoring of Jalandhar-Kartarpur 2nd ckt was completed in first week of August'2022.
- SLDC officers are now authorised to sell the power in real-time market and they can now both buy/ sell power in real-time market and can minimise underdrawl/ overdrawl in real-time market.

- Meeting was conducted with TSPL officers in state OCC and the issue of frequent forced outages of TSPL units were discussed in the meeting. Minutes of meeting were shared with NRPC. TSPL has been advised to take necessary preventive maintenance activities during off-peak season to minimize outages during high demand paddy months.

UP

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

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

In 198 OCC meeting, NRLDC representative presented the loading of different 400/220kV ICTs. It was discussed that loading of 400/220kV Obra, Gorakhpur, Azamgarh, Sarnath ICTs was beyond the N-1 limit (SPS implemented). Loading of other 400/220kV ICTs such as Allahabad(PG), Lucknow(PG), Sohawal(PG) and Nehtaur ICTs was also close to N-1 limits. Commissioning of Gonda 400kV may also be expedited for easing loading of 400/220kV Sohawal ICTs.

UP SLDC representative informed that:

- LoA has been placed for Sohawal SPS. The work is expected to be completed in next 3 months.
- For Obra SPS, budgetary offer is being collected from vendors.
- Regarding change in schedule in consecutive time blocks, it was discussed that the matter has been taken up with PMC cell and now the change in schedule in consecutive blocks has reduced. Same would further reduce in the upcoming few weeks.

Rajasthan

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

In 198 OCC meeting, NRLDC representative stated that loading close to N-1 limits was observed at 400/220kV Ajmer, Bikaner, Jodhpur and Chittorgarh ICTs. Rajasthan was also asked to plan SPS for 400/220kV Bikaner ICTs. RVPN representative informed that new ICT has been approved at Ajmer, Merta, Bikaner and Jodhpur. NRLDC representative stated that documents for approval of these ICTs may be shared by RVPN as same would also be required during FTC of elements.

Rajasthan SLDC representative provided following information:

- SPS implementation at Ajmer has been completed.
- SPS for 400/220kV Bikaner and Bhadla would be developed and shared with NRPC/ NRLDC.
- MW logic has been included in recently approved SPS at 400/220kV Jodhpur and Ratangarh S/s.
- RVPN agreed to share approval of these new ICTs with NRPC/ NRLDC.

Delhi

In 197 OCC meeting, NRLDC representative highlighted following issues:

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

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

In 198 OCC meeting, Delhi representative stated that ATC/TTC limits have been uploaded on SLDC website.

Haryana

In 197 OCC meeting, it was discussed that N-1 non-compliance was observed at 400/220kV Deepalpur and Panipat (BBMB) ICTs. It was discussed that Haryana and Delhi may mutually discuss and resolve the issue of loading of 400/220kV Panipat ICTs and in case same is not resolved it could be discussed in separate meeting or next OCC meeting after agenda by Haryana/ Delhi.

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

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

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

In 198 OCC meeting, no update was received from SLDC Haryana.

Uttarakhand

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

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

In 198 OCC meeting, it was discussed that Kashipur SPS has been deliberated in internal meeting, however consent of state DISCOM is pending. It was discussed that proposed SPS at Kashipur may be shared with NRLDC/ NRPC and meanwhile consent of DISCOM may be taken. Thereafter, SPS proposal at Kashipur may be included as agenda in next OCC meeting.

HP have shared their ATC/TTC assessment for monsoon 2022. Loading was observed beyond N-1 compliant limit for 400/220kV Nallagarh ICTs. High loading of 220kV Nallagarh-Upernangal D/C was also observed. Same has also been shared with CTU/CEA in quarterly operational feedback.

J&K

Not assessing its ATC. J&K representatives had intimated during 47th TCC and 49th NRPC meeting that they would be sharing ATC/TTC assessment with NRLDC from October 2021, however the same is still awaited. J&K and Ladakh U/Ts are once again requested to advise the concerned officers to evaluate their ATC/TTC limits in coordination with NRLDC and share latest assessment with NRLDC and NRPC.

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

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

It was 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. Moreover, at all the stations where SPS have been proposed/ implemented, required transmission system needs to be planned and expedited (if already planned) i.e. SPS should only be treated as temporary solution.

27. NR-ISTS RE evacuation issues

NRLDC representative stated that more than 10GW of Renewable energy has been commissioned in Northern region, most of which is in Western Rajasthan. As on 10th Aug 2022, following capacities have been commissioned and approved under LTA/MTOA/STOA at different ISTS RE pooling stations in NR:

User Name	Capacity Approved under LTA/MTOA/STOA (MW)			Total Approved capacity (MW)	Total Contracted Capacity (MW)	Total Installed Capacity (MW)
	LTA	MTOA	STOA			
Bhadla(PG)	2637	0	450	3087	3087	3130
Bikaner(PG)	1950	240	483	2673	2673	2673
Fatehgarh-II(PG)	1890	0	600	2490	2490	2670
Fatehgarh-I(Adani)	296	0	657	953	953	1181
Bhadla-II(PG)	250	0	850	1100	1100	1100
Total RE at NR ISTS	**7023**	**240**	**3040**	**10303**	**10303**	**10754**

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

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

Additional 342MW at Bikaner(PG), 300MW at Bhadla-II(PG), 43MW at Bhadla(PG) and 43MW at Fatehgarh-I (Adani) would come soon as plants are already registered and commissioned their part capacity.

Allowing further STOA with existing system would be difficult, same is summarized as follows;

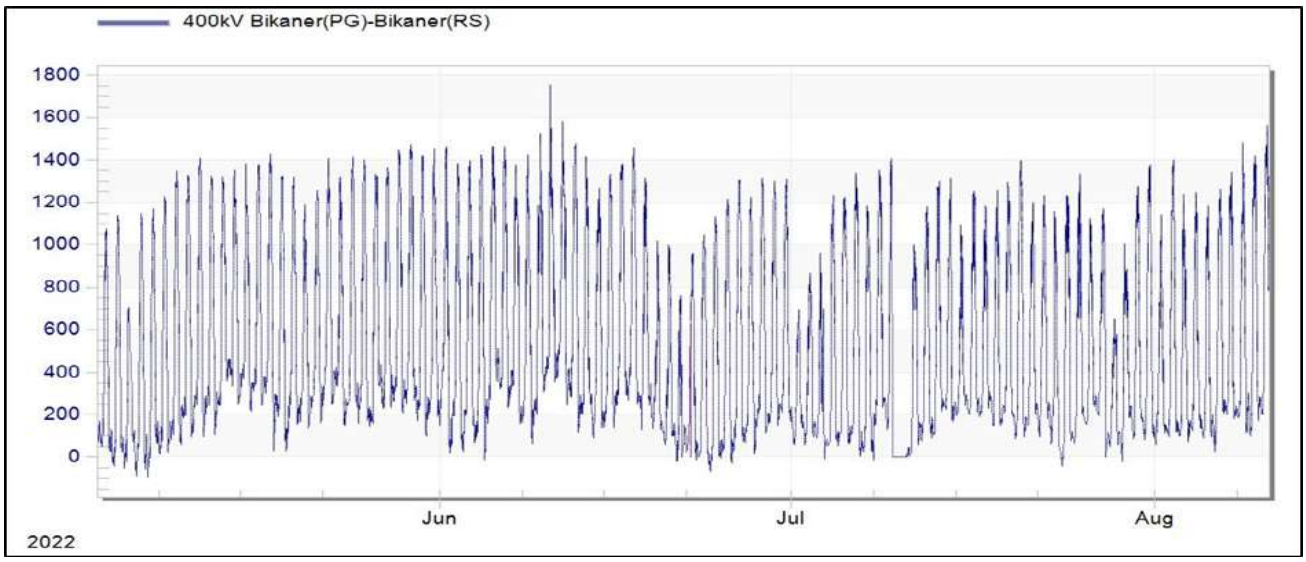
High loading of 400kV Bikaner(PG)-Bikaner(RS) line:

400kV Bikaner(PG)-Bikaner(RS) line is Quad moose having thermal loading limit of ~1750MW. However, due to the limitation of equipments installed at Bikaner(RJ) end, the line can only be safely loaded upto 1385MVA as the equipments installed are rated for 2000A only. Due to significant RE at Bikaner(PG), and low impedance path of 400kV Bikaner(PG)-Bikaner(RS) line, line loading of 400kV Bikaner(PG)-Bikaner(RS) remains high and is reaching 1400-1500MW during peak solar generation period. As of now, 400kV Bikaner(RS)-Sikar D/C lines are being opened to manage loading of 400kV Bikaner(PG)-Bikaner(RS).

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

- By opening 400kV Bikaner(RS)-Sikar(PG) ckt-1, voltage at 400kV Bikaner(PG) falls by 3-4 kV whereas with opening of 400kV Bikaner(RS)-Sikar(PG) ckt-1&2, voltage at 400kV Bikaner(PG) falls by 6-8 kV.

- Opening of 400kV Bikaner(RS)-Sikar(PG) ckt-1&2 leads to reduced fault level of the system especially at Bikaner(PG). Moreover reliability of the system is reduced as connectivity is reduced.



At the time of peak RE generation of ISTS and Rajasthan, 400kV Bikaner(PG)-Bikaner(RS) line is N-1 non-compliant even when line loading is less than 1300 MW as in case of tripping of either 765kV Bikaner(PG)-Khetri or 400kV Bhadla(PG)-Bhadla(RS) line, loading of 400kV Bikaner(PG)-Bikaner(RS) may cross the limit for which terminal equipments are installed at Bikaner(RS).

Voltage related issues during peak solar generation period:

With existing quantum of generation and existing network system, RE evacuation zone is on the limit of voltage stability at the time of Peak RE generation of ISTS and Rajasthan and any N-1 contingency of 765kV Bikaner(PG)-Khetri ckt-1&2, 400kV Bikaner(PG)-Bikaner(RS), 765kV Fatehgarh-II(PG)-Bhadla(PG) ckt-1&2 and 765kV Fatehgarh-II(PG)-Bhadla-II(PG) ckt-1&2 may lead to huge generation loss or serious voltage issues in the complex.

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

The above issues were also discussed in 196th OCC meeting and 55th NRPC meeting.

Deliberation held in 198 OCC meeting is summarised below:

RE evacuation zone is on the limit of voltage stability at the time of Peak RE generation of ISTS and Rajasthan and any N-1 contingency of 765kV Bikaner(PG)-Khetri ckt-1&2, 400kV Bikaner(PG)-Bikaner(RS), 765kV Fatehgarh-II(PG)-Bhadla(PG) ckt-1&2 and 765kV Fatehgarh-II(PG)-Bhadla-II(PG) ckt-1&2 may lead to huge generation loss or serious voltage issues in the complex.

NRLDC representative stated that commissioning of Bikaner-II should be expedited and the commissioning of solar generators and transmission lines may be done in close timeframe so as to make sure RE can be safely evacuated without any issues.

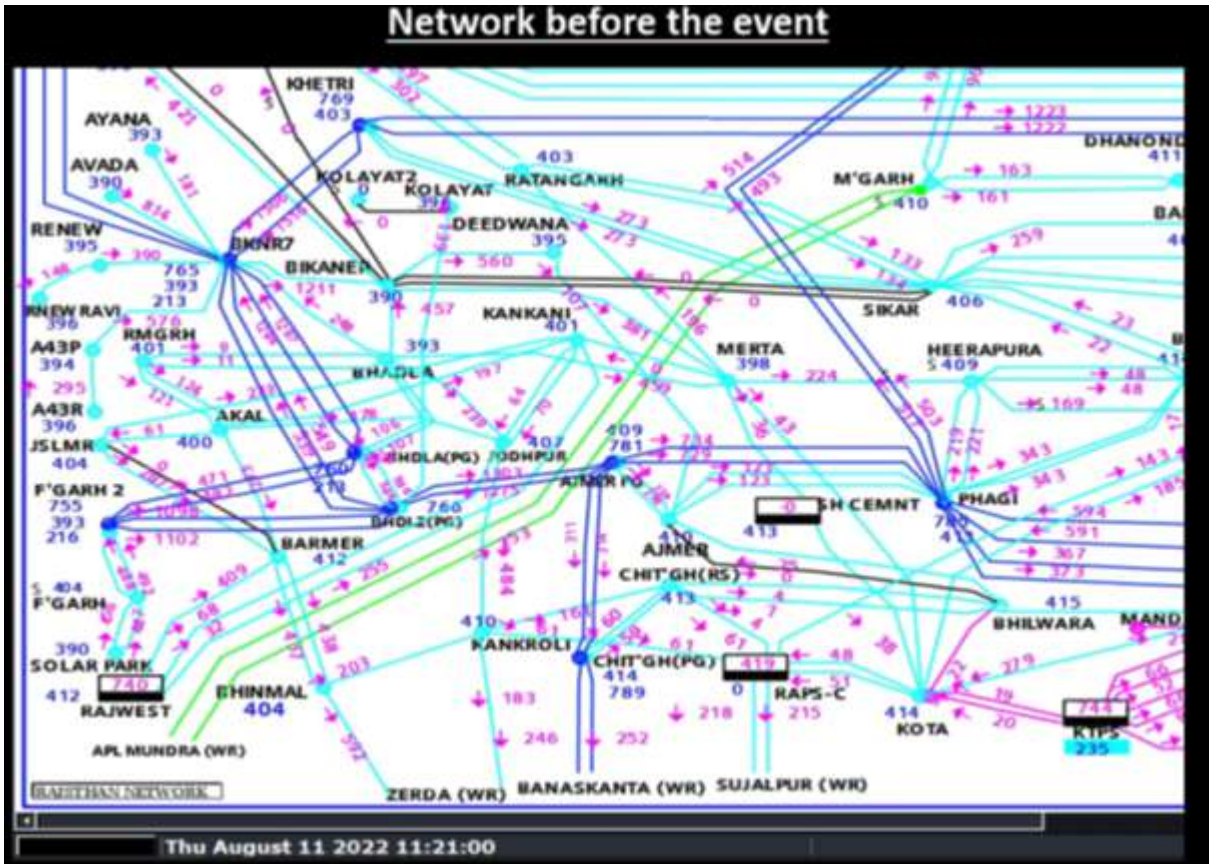
MS NRPC enquired how bus reactors and line reactors are being switched to manage voltages in ISTS RE complex.

NRLDC representative informed that number of bus reactors and line reactors are being opened on the instruction of NRLDC (NLDC also in case of 765kV) monitoring voltages in the grid and anticipated solar generation pattern cautiously as the fault level in the complex is low. It was mentioned that approximately more than 25 bus reactors and 6-7 line reactors are being opened on daily basis in the interstate as well as intrastate RE complex of Rajasthan. However, there is some time after which the operation is implemented at field, say 30 minutes after issuance of code which becomes critical in case of increase/ decrease in solar generation.

POWERGRID representative stated that one/ two bus reactors may be kept charged so as to avoid any overvoltage tripping in case of any tripping.

NRLDC representative presented the grid scenario of 11th August @11:21 hrs as shown below which was even earlier than peak solar timing and mentioned that bus reactors and line reactors are meant for voltage management. Moreover, the snapshot is of 11:21 hrs therefore around 12:30-01:00 hrs, at the time of peak solar generation, voltages go further down. Keeping one or two bus reactor may prove detrimental as the fault level is low and any tripping is likely to lead to low voltage related issues in the complex. However, on cloudy days when solar generation is less than clear day, due care is taken and reactors are being opened as per grid requirements.

Moreover, since not all solar plants are not supporting the grid in terms of MVAR requirement, it would be very difficult to manage the voltages within IEGC prescribed band without opening all bus reactors.



NRLDC representative stated that apart from the LVRT/HVRT related issues, commissioning of transmission elements in the complex including STATCOM which is delayed needs to be prioritized as it is leading to RE evacuation related issues.

POWERGRID representative stated that STATCOMs under implementation at Bhadla-II and Fatehgarh-II are expected by Dec-2022 and no additional RE evacuation transmission system is envisaged in near future.

CTU representative stated that earlier STATCOMs under implementation at Bhadla-II and Fatehgarh-II were to be commissioned by August 2022 which is being postponed and are not expected by end of 2022 as per latest intimation by POWERGRID. POWERGRID was asked to commission these STATCOMs at the earliest.

Removal of LILO of 400kV Bhadla(RS)-Bikaner(RS) needs to be completed by its scheduled time i.e. Dec'2022 to ease loading of 400kV Bikaner(PG)-Bikaner(RS) and also facilitate generation evacuation from Bikaner-II.

CTU representative stated that the solar generators in the complex have been coming up as their commissioning period is less however only part of transmission system is commissioned due to delay in clearance due to GIB related issues.

With the above limitations, forum was of the view that further injection of power in the complex may lead to insecure operation of the grid and requested all the concerned to expedite the commissioning of planned transmission system. Forum further opined that if margin for additional short term open access is not available same may not be granted till the commissioning of planned transmission system.

MS NRPC also expressed concern that commissioning of solar plants and transmission system should be aligned as the situation wherein evacuation is not possible due to transmission evacuation constraint should not happen. CTU representative stated that this issue has arisen due to GIB issue in transmission system commissioning and the generators were regularly updated about the transmission system commissioning status. The situation is likely to improve with commissioning of Bikaner-II and associated transmission elements expected in Dec' 2022.

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

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

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

Following was majorly discussed and concluded:

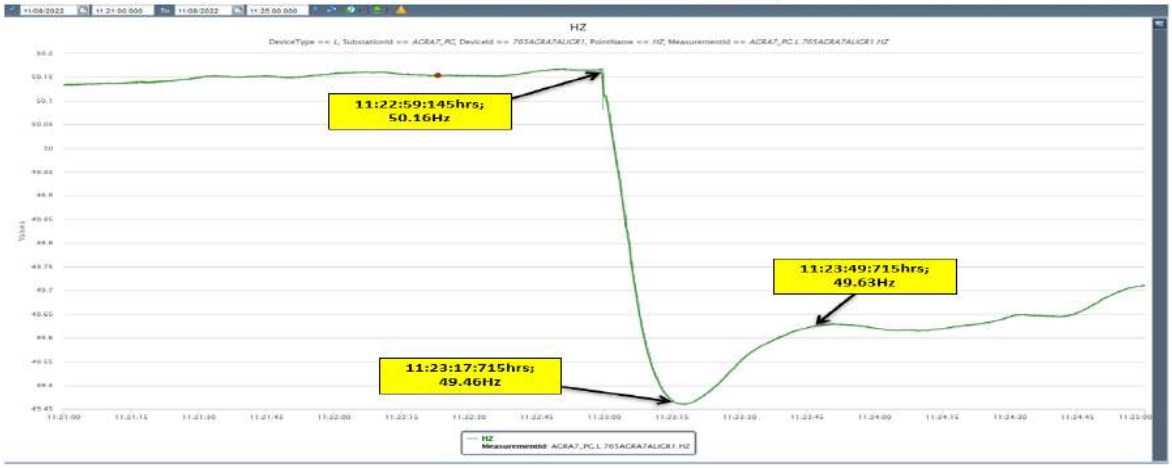
- Expediting removal of LILO of one circuit of Bhadla-Bikaner(RVPN) 400kV D/c(Quad) line at Bikaner(PG). Extension of above LILO section from Bikaner(PG) upto Bikaner-II PS to form Bikaner-II PS – Bikaner (PG) 400kV D/c(Quad) line)

- Commissioning of solar generators and transmission lines may be done in close timeframe so as to make sure RE generation can be safely evacuated without any issues
- STATCOMs under implementation at Bhadla-II and Fatehgarh-II which are delayed to be commissioned at the earliest.
- If margin for additional short term open access is not available same may not be granted till the commissioning of planned transmission system
- Switchgear rating at Bikaner(RJ) end to be upgraded
- Managing N-1 non-compliance at 400/220kV Bikaner ICTs including exploring SPS requirement.

Near-miss incident of 6000 MW loss of solar generation on 11th Aug 2022

In the meeting, it was discussed that near-miss incident of 6000 MW loss of solar generation on 11th Aug 2022 was observed in which frequency had fallen to 49.46 Hz from a level of 50.16 Hz narrowly missing the first stage of UFR shedding. If the frequency had been slightly on the lower side i.e. near/ below 50 Hz there would have been a major event including UFR load shedding.

PMU Plot of frequency at 765kV Agra(PG)
11:23hrs/11-Aug-22



Some key points of event are highlighted below:

- At 11:22:59hrs, R-B phase to phase fault occurred on 220kV Bhadla- Clean Solar Jodhpur ckt due to snapping of B-ph jumper which fell on R-ph. As per PMU, R-B phase to phase fault which cleared within 80ms is observed.

- As per PMU plots of phase voltage, MW & MVAr of RE stations, it is observed that during the voltage dip of fault, phase voltage at Bhadla, Fatehgarh2, Bhadla2 & Bikaner dropped to 0.59pu, 0.79pu, 0.8pu & 0.82pu respectively.
- As voltage dropped below 0.85pu, almost all the RE stations dropped their MW except ASPS1 & ASPS2 RE stations connected at Fatehgarh1 (ADANI Solar park) on LVRT operation.
- **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.**
- **It is observed that even voltage recovered to its normal value after clearing of fault within 100ms, MW of RE stations didn't recover in defined time as per LVRT operation.**
- **Due to significant drop in MW and inadequate MVAR support from RE stations, rise in voltage is observed at ISTS RE pooling stations.**
- Further after approx. 5-6secs, all four (04) 765kV lines connected at Fatehgarh2 (PG) along with 765kV Ajmer- Bhadla2 D/C & 765kV Bhadla2-Bikaner ckt-1 and few 220kV lines to RE stations tripped on over voltage protection.
- As per SCADA, loss of approx. 5807MW solar generation connected at Bhadla(PG), Bhadla2(PG), Bikaner(PG), Fatehgarh2(PG) & Fatehgarh1 (ADANI Solar Park) & approx. 350MW wind generation connected at Fatehgarh2 & Fatehgarh1 (ADANI Solar Park) & wind occurred.
- As reported, load shedding of approx. ~200MW in Punjab, ~150MW in Haryana & ~400MW in UP control area due to df/dt protection operation during the event.

CTU representative enquired whether HVRT related trippings were also observed in this event or only LVRT. NRLDC representative stated that in event observed on 9th July 2022, both LVRT and HVRT non-compliances were observed which were also communicated to CTU/CEA by NRLDC letter. However, for event of 11 Aug 2022, it seems to be LVRT non-compliance issue at Point of Interconnection majorly, however same is being investigated in detail and data from solar generators is awaited.

In the meeting, it was discussed that along with developers the matter also needs to be taken up with plant manufacturers and OEM as even after pursuing the matter with solar generators no/ improper response is received. LVRT/HVRT compliance test at Point of Interconnection is not being done during pre-commissioning field tests and same is only being checked based

on real-time events where most of the plants are observed to be LVRT/ HVRT non-compliant.

It was discussed and agreed that following points need further analysis and discussion:

- Behaviour of MW & MVAR was not as per LVRT operation (as per CEA standard for connectivity).
- Operation of PPC during LVRT operation needs to be reviewed.
- DR, EL & tripping report needs to be shared by all RE stations.
- Load shedding quantum in each state control area in the event to be reported to NRLDC

28. Grid operation related issues

(i) Long outage of transmission elements/ generating units

Reasons and revival date for elements under long outage are being discussed regularly in OCC meetings. It was requested that update on the status of these elements from last OCC meeting may be shared with the forum (latest status attached as **Annexure-B.II**).

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

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

Utilities were 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, PSSe basecase, Protection analysis etc.

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

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

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

Uttarakhand SLDC representative informed that data calculation was already done from SLDC end data and there is difference between the values from NRLDC end and Uttarakhand SLDC end drawl data; few data points are suspected. There are shortages of Multi-Funcational 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.

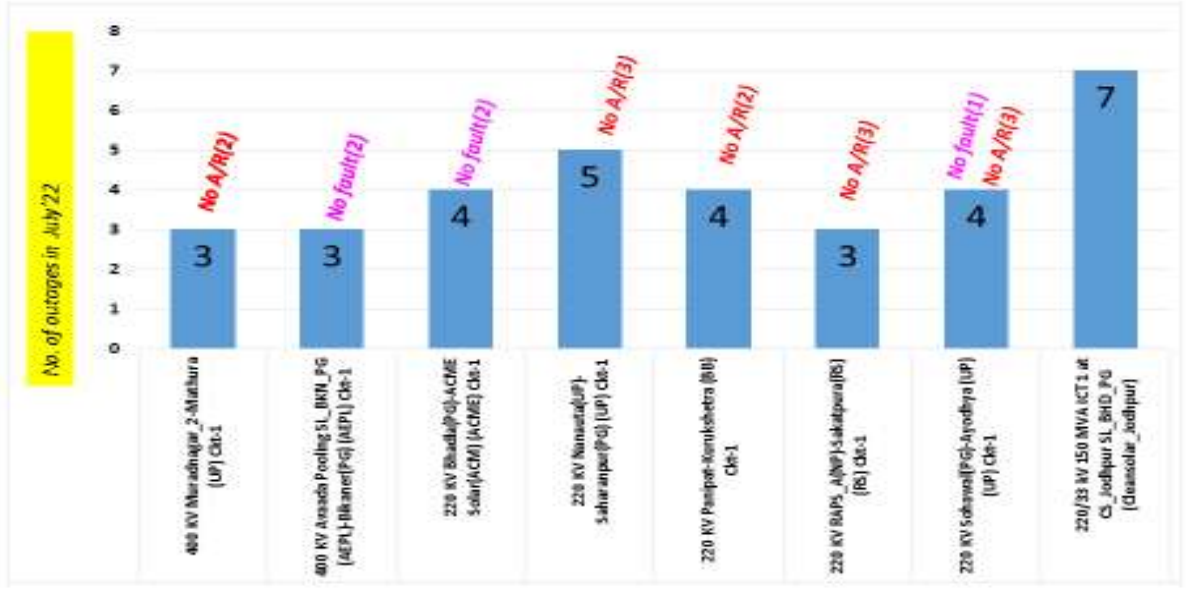
Uttarakhand SLDC representative informed that tender is to be awarded within next two weeks.

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

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

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	400 KV Muradnagar_2-Mathura (UP) Ckt-1	3	UP
2	400 KV Avaada Pooling SL_BKN_PG (AEPL)-Bikaner(PG) (AEPL) Ckt-1	3	AEPL
3	220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1	4	ACME
4	220 KV Nanauta(UP)-Saharanpur(PG) (UP) Ckt-1	5	POWERGRID/UP
5	220 KV Panipat-Kurukshetra (BB) Ckt-1	4	BBMB
6	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1	3	RAJSTHAN
7	220 KV Sohawal(PG)-Ayodhya (UP) (UP) Ckt-1	4	UP
8	220/33 kV 150 MVA ICT 1 at CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur)	7	Cleansolar_Jodhpur

27. Frequent Forced outages: July '22



The complete details are attached at **Annexure-B.V of the agenda.**

Discussion during the meeting:

- **400 KV Muradnagar_2-Mathura (UP) Ckt-1**: *UPPTCL representative stated that cause of tripping of all three tripping were transient fault, for 30th and 26th July A/R was successful from Muradnagar end but failed from Mathura end.*

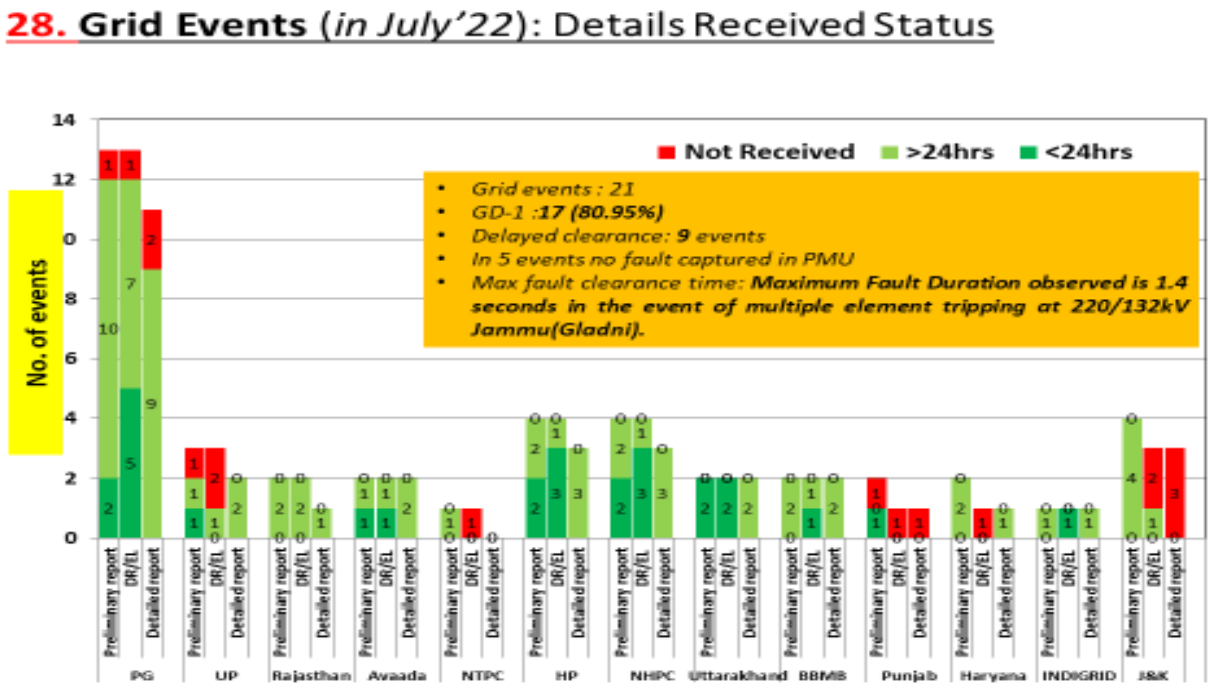
For tripping on 21st July A/R was successful from Mathura end but loose auxiliary contact at Muradnagar end caused unsuccessful A/R. On 7th July Unsuccessful operation of A/R was due to incorrect switch position after return of shutdown.

- **220 KV Sohawal(PG)-Ayodhya (UP) (UP) Ckt-1:** *UPPTCL representative informed that unsuccessful A/R was being observed due to spurious signal .on PGCIL request cable has been replaced.*
- **220 KV Nanauta(UP)-Saharanpur(PG) (UP) Ckt-1:** *UPPTCL representative stated that A/R was not observed on 11th July because fault after tripping was observed during fault reclaim time. On 12th July fault was highly resistive causing zone 3 tripping so no A/R was observed.On 21st July A/R was successful from Nanauta end but tripping was observed from Saharanpur end. On 26th July operational mistake at Nanauta substation.*

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

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

30. Multiple element tripping events in Northern region in the month of July '22:



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

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

Maximum Fault Duration observed is 1.4 seconds in the event of multiple element tripping at 220/132kV Jammu (Gladni). As reported, at 10:30hrs, PT of 132kV Bus at Gladni switchyard burst. Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **9** events out of **21** grid events occurred in the month. In 5 number of events, fault signature couldn't be captured from PMU data.

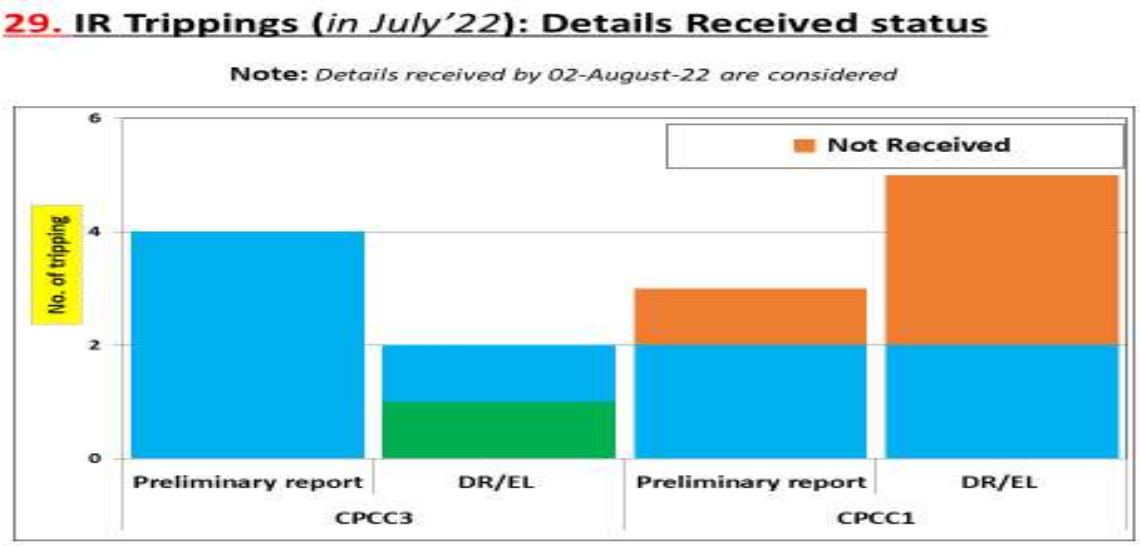
Members may take necessary preventive measures to avoid such grid incidents / disturbances in future and report actions taken by respective utilities in OCC & PSC forum. Moreover, utilities may impress upon all concerned for providing the Preliminary Report, DR/EL & Detailed Report of the events to RLDC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

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

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

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

31. Details of tripping of Inter-Regional lines from Northern Region for July'22:



A total of 4 inter-regional lines tripping occurred in the month of July'22. The list is attached at **Annexure-B.VII of agenda.** 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.

NRLDC representative raised concern about poor status of report updation by POWERGRID CPCC1 and CPCC3 on the tripping portal. He further stated that timely report submission is an important activity and all constituents are advised to take this on priority and upload the reports.

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

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

NRLDC representative informed the current status (as on 05th August 2022) of DR/EL and tripping report of utilities for the month of July 2022. Consolidated information is tabulated below:

30. DR/EL Status: July'22

S. No.	Utility	Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)	Remark
			Value	%	Value		%	Value		%	Value		%	
1	ACME	5	5	100	5	0	100	5	0	100	5	0	100	DR/EL & Tripping report needs to be submitted
2	ADANI	1	1	100	1	0	100	1	0	100	1	0	100	
3	AHEJ2L	1	1	100	1	0	100	1	0	0	1	0	100	
4	AHEJ4L	1	0	0	0	0	0	0	0	0	0	0	0	
5	ANTA-NT	3	1	33	1	0	33	1	1	50	1	0	33	DR/EL & Tripping report needs to be submitted
6	APMPL	1	1	100	1	0	100	1	0	100	1	0	100	
7	ARP1PL	1	1	100	1	0	100	1	0	100	1	0	100	
8	ASEPL	10	1	10	1	7	33	1	7	33	1	7	33	
9	AURAIYA-NT	1	0	0	0	0	0	0	0	0	0	0	0	
10	BAIRASUL-NH	1	0	0	0	1	0	0	0	0	0	0	0	
11	BBMB	45	11	24	11	7	20	11	17	39	11	2	26	DR/EL & Tripping report needs to be submitted
12	BUDHIL	1	0	0	0	0	0	0	0	0	0	0	0	
13	CHAMERA-III-NH	1	1	100	1	0	100	1	0	100	1	0	100	DR/EL & Tripping report needs to be submitted
14	CLEANSOLAR_JODHPUR	9	9	100	9	0	100	9	0	100	9	0	100	
15	CPCC1	82	27	33	27	10	38	27	13	39	28	8	38	
16	CPCC2	44	0	0	2	2	5	0	2	0	24	0	55	
17	CPCC3	46	2	4	2	5	5	2	5	5	2	0	4	
18	ESUCRL	1	1	100	1	0	100	1	0	100	1	0	100	
19	FARIDABAD-NT	1	1	100	1	0	100	1	0	100	1	0	100	
20	INDIGRID	1	0	0	0	1	0	0	1	0	0	0	0	
21	NAPP	1	0	0	0	0	0	0	0	0	0	0	0	

30 DR/EL Status: July'22

22	RAPPA	8	5	63	8	0	100	8	0	100	8	0	100	DR/EL & Trippingreport needstobe submitted
23	RAPPB	1	0	0	1	0	100	1	0	100	1	0	100	
24	RAPPC	5	5	100	4	0	80	4	0	80	4	0	80	
25	RENEW	3	3	100	3	0	100	3	0	100	3	0	100	
26	RSE/3PL	1	1	100	1	0	100	1	0	100	1	0	100	
27	SALAL-NH	10	1	10	0	0	0	0	0	0	0	0	0	
28	SAURYA	2	2	100	2	0	100	2	0	100	2	0	100	DR/EL & Trippingreport needstobe submitted
29	SINGOLI	3	2	67	3	0	100	3	0	100	3	0	100	
30	SINGRAULI-NT	3	0	0	3	0	100	3	0	100	3	0	100	
31	SLDC-DV	10	2	20	3	1	33	3	1	33	3	0	30	
32	SLDC-HP	6	0	0	0	6	0	0	6	0	0	0	0	
33	SLDC-HR	19	1	5	3	0	16	1	0	5	1	0	5	DR/EL & Trippingreport needstobe submitted
34	SLDC-JK	26	0	0	7	19	100	3	23	100	12	10	75	
35	SLDC-PS	20	6	30	13	4	81	13	3	76	18	0	90	
36	SLDC-RS	70	0	0	10	0	14	10	0	14	13	0	19	
37	SLDC-UK	28	0	0	0	8	0	0	14	0	0	1	0	
38	SLDC-UP	139	23	17	35	11	27	35	16	28	34	3	25	
39	STERLITE	9	0	0	0	1	0	0	1	0	2	3	33	
40	TANAKPUR-NH	4	0	0	0	3	0	0	3	0	0	0	0	
41	TANDA-NT	4	3	75	3	0	75	3	0	75	3	0	75	DR/EL & Trippingreport needstobe submitted
42	TATAPOWER	3	1	33	1	0	33	1	0	33	3	0	100	
43	THAR SURYA 1 PRIVATE LIMITED	2	1	50	1	1	100	1	1	100	1	1	100	
44	UNCHAHAR-NT	2	1	50	1	0	50	1	0	50	1	0	50	

As per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event

It is to be noted that as per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement.

NRLDC representative raised concern about poor status of report updation by Rajasthan, Punjab, BBMB, J&K, CPCC3 and RE developers on the tripping portal.

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

Members agreed for the same.

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

In last 15 OCC meetings, this point was discussed and Utilities were requested to submit the present status of PSS tuning/re-tuning and Step Response Test of their respective generators as per the below mentioned format.

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

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

Rosa Power unit #2 AVR voltage response test has been done in Jan 2022 and report submitted on 22/06/2022.

NRLDC representative informed that all the units who have done Step response test before 2018 were requested to plan the exciter step-response test as soon as possible and submit the tentative schedule of step-response test on the units with NRPC/ NRLDC. He further informed that till date Schedule has been received from Rajasthan and UP Control area. He further requested that members may kindly Accord due priority in this regard and update about their future plan for PSS tuning as there is little progress despite including this agenda in every OCC meeting.

Members agreed for the same.

Follow up issues from previous OCC meetings

Annexure-A.I

<table>
<tr><td>1</td><td>Down Stream network by State utilities from ISTS Station</td><td>Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.</td><td>List of downstream networks is enclosed in Annexure-A.I.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Sep-2019
◎ DELHI — Jul-2022
◎ HARYANA — May-2022
◎ HP — Jan-2022
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jul-2022
◎ RAJASTHAN — Jul-2022
◎ UP — Jun-2022
◎ UTTARAKHAND — Jul-2022
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td>3</td><td>Healthiness of defence mechanism: Self-certification</td><td>Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that “All the UFRs are checked and found functional”.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Not Available
◎ DELHI — Jun-2022
◎ HARYANA — Jun-2022
◎ HP — Jun-2022
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jun-2022
◎ RAJASTHAN — Jun-2022
◎ UP — Jun-2022
◎ UTTARAKHAND — Jun-2022
◎ BBMB — Jun-2022
All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quartely basis for the rest .</td></tr>
<tr><td></td><td></td><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td>Status:
◎ CHANDIGARH — Not Available
◎ DELHI — Increased
◎ HARYANA — Increased
◎ HP — Increased
◎ J&K and LADAKH — Not increased
◎ PUNJAB — Increased
◎ RAJASTHAN — Increased
◎ UP — Increased
◎ UTTARAKHAND — Increased
◎ BBMB — Increased</td></tr>
</table>

			BBMB was requested to submit the updated self certification report indicating increase of 0.2 Hz in AUFR settings, within one week. J&K and LADAKH were requested to update status for increasing settings of UFRs.
4	Status of FGD installation vis-à-vis installation plan at identified TPS	List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed. Further, progress of FGD installation work on monthly basis is monitored in OCC meetings.	Status of the information submission (month) from states / utilities is as under: ◎ HARYANA — Mar-2022 ◎ PUNJAB — Aug-2022 ◎ RAJASTHAN — Aug-2022 ◎ UP — Jun-2022 ◎ NTPC — Feb-2022 FGD status details are enclosed as **Annexure-A.I.II.** All States/utilities are requested to update status of FGD installation progress on monthly basis.
5	Information about variable charges of all generating units in the Region	The variable charges detail for different generating units are available on the MERIT Order Portal.	All states/UTs are requested to submit daily data on MERIT Order Portal timely.
6	Status of Automatic Demand Management Sysytem in NR states/UT's	The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:	Status: ◎ DELHI — Fully implemented ◎ HARYANA — Scheme not implemented ◎ HP — Scheme not implemented ◎ PUNJAB — Scheme not implemented ◎ RAJASTHAN — Under implementation. 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: 4 Unutilized: 4	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Dec'22	Updated in 197th OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Dec'22	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Apr'24	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0 Approved:4	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	May'24	Updated in 197th OCC by HVPNL
11	400/220kV Tughlakabad GIS	Commissioned: 6 Under Implementation: 4 Total: 10	Utilized: 6 Unutilized: 0 Under Implementation:4	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	-	DTL to update the status.
				• Masjid Mor – Tughlakabad 220kV D/c line.	-	DTL to update the status.
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Mar'23	Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur	Commissioned: 8	Utilized: 0	• LILO of both circuits of 220 KV Pali - Sector 56 D/C line at Kadarpur along with augmentation of existing conductor from 220 KV Sector-56 to LILO point with 0.4 sq inch AL-59 conductor.	Mar'23	Updated in 197th OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
13	Sub-station	Total: 8	Unutilized: 8	• LILO of both circuits of 220KV Sector 65 - Pali D/C line at Kadarpur along with augmentation of balance 0.4 sq. inch ACSR conductor of 220 kV Kadarpur - Sector 65 D/C line with 0.4sq inch AL-59 conductor	May'23	Updated in 197th OCC by HVPNL
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 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
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
		Commissioned: 8 Under tender:2	Utilized: 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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
25	400/220kV Pachkula Sub-station	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	Unutilized: 4 Under Implementation:2	• 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
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	HVPNL to update the status
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	Sept'22	Saharanpur(PG)-Devband D/c line expected energization date Sept'22 updated by UPPTCL in 196th OCC
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	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.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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 (18.06.2022)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

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

Updated status of FGD related data submission

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

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

Adani Power Ltd. (18.02.2022)
KAWAI TPS

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

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB

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

Target Dates for FGD Commissioning (Utility-wise)

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

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

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

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

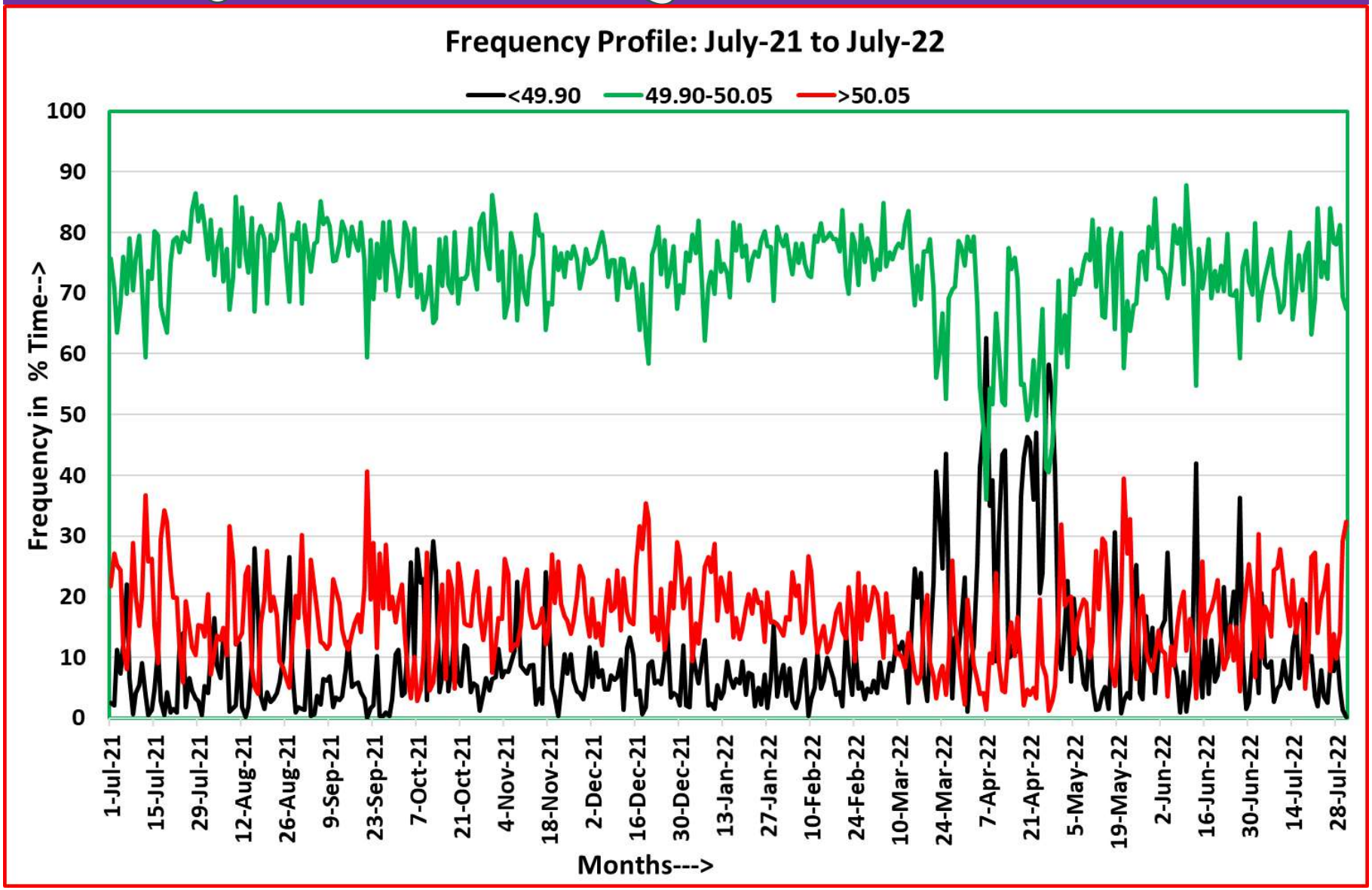
Annexure-B.I

प्रचालन समन्वय उपसमिति की बैठक
जुलाई - 2022

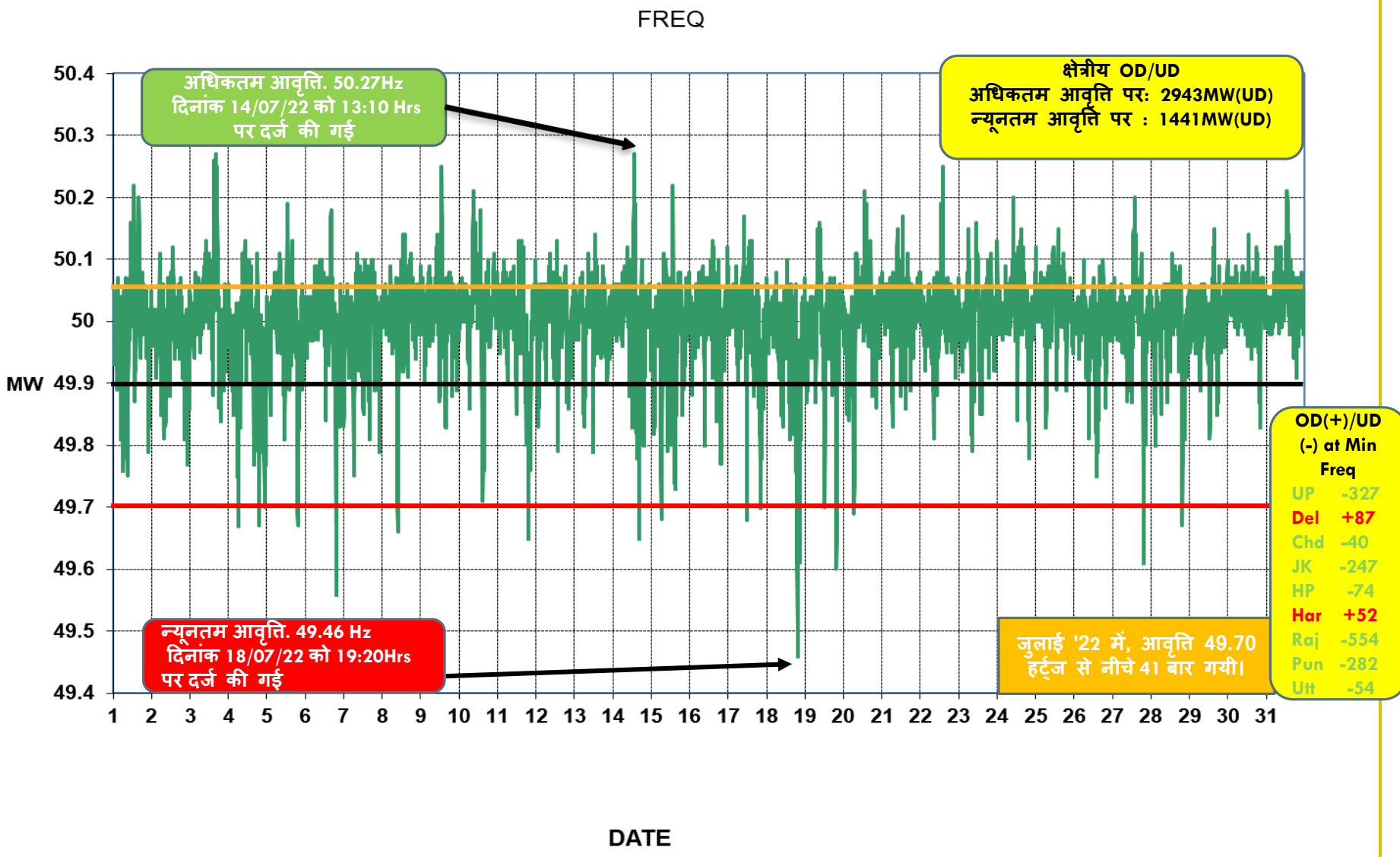
पिछले एक साल मे आवृत्ति की स्थिति

आवृत्ति बैंड	जुलाई 2021	अगस्त 2021	सितम्बर 2021	अक्टूबर 2021	नवम्बर 2021	दिसम्बर 2021	जनवरी 2022	फ़रवरी 2022	मार्च 2022	अप्रैल 2022	मई 2022	जून 2022	जुलाई 2022
< 49.7 Hz(%)	0.04	0.17	0.21	0.31	0.09	0.03	0.02	0.08	0.46	4.94	0.27	0.42	0.42
<49.8 Hz(%)	0.67	1.3	0.69	2.43	1.17	0.71	0.53	0.55	2.92	13.60	1.94	2.41	1.78
<49.9 Hz(%)	5.35	7.67	4.18	11.10	8.02	6.92	5.84	5.99	14.50	31.98	9.83	12.45	7.82
49.90-50.05 Hz(%)	**75.06**	**76.93**	**77.01**	**74.38**	**74.10**	**73.14**	**75.66**	**77.06**	**73.42**	**59.30**	**72.23**	**73.38**	**73.45**
50.05-50.10 Hz(%)	16.71	14.14	15.83	12.70	14.77	15.09	15.17	14.36	10.28	7.35	12.95	11.46	14.84
>50.10 Hz(%)	2.78	1.25	2.26	1.81	3.05	3.89	3.21	2.51	1.72	1.35	4.11	2.43	3.58
>50.20 Hz(%)	0.10	0.01	0.03	0.06	0.07	0.25	0.11	0.08	0.08	0.08	0.88	0.28	0.31
औसत आवृत्ति	50.01	50.00	50.00	49.99	50.00	50.00	50.00	50.00	49.98	49.93	50.00	49.99	50.00

आवृत्ति की स्थिति: जुलाई -2021 से 2022



जुलाई-2022 के दौरान आवृत्ति की स्थिति
(As per 5 Minute SCADA data)

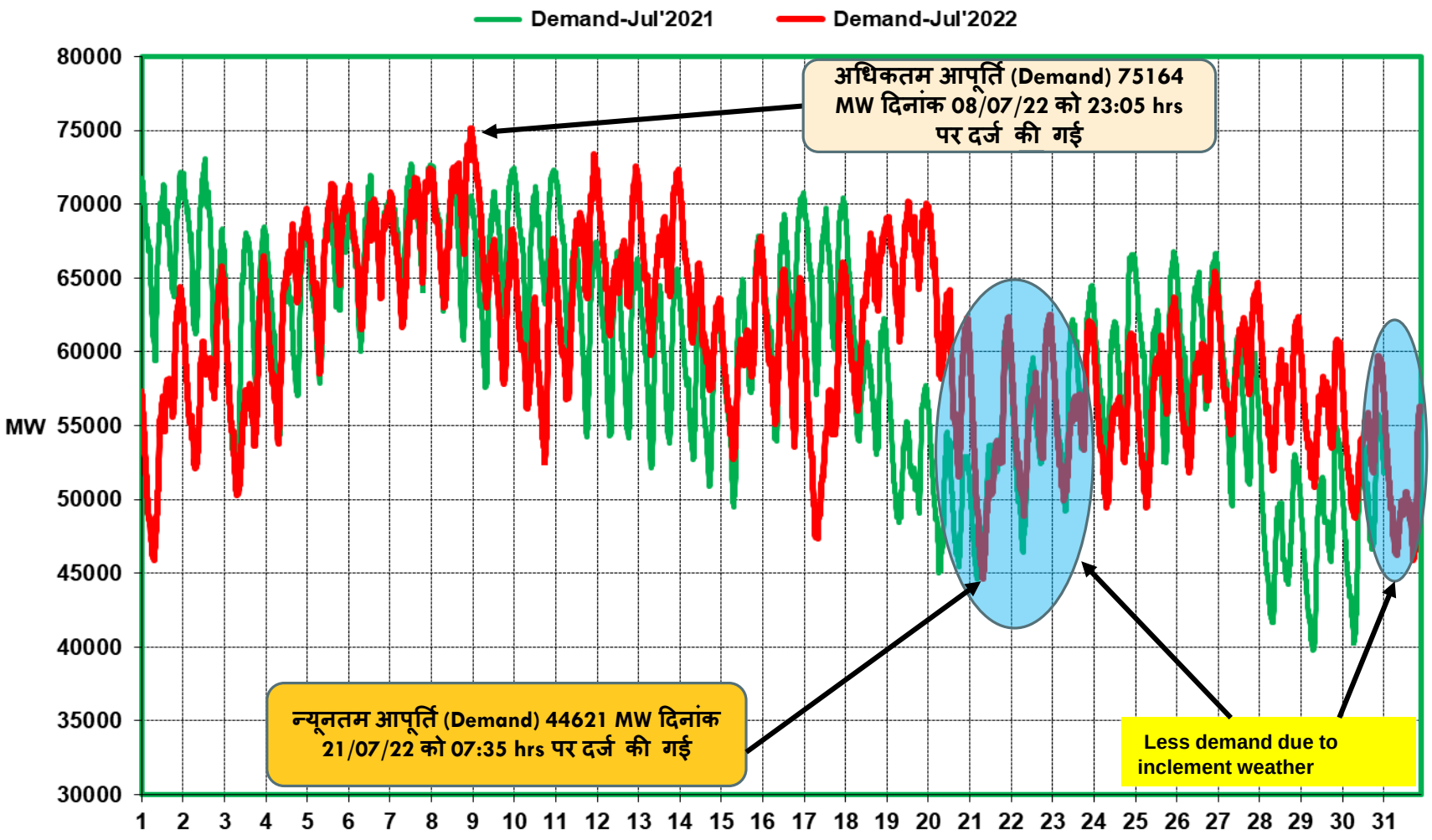


जुलाई -2022 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

राज्य	अधिकतम मांग (MW) (in July'22)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto June'22)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in July'22)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto June'22)	दिनांक
पंजाब	14058	08.07.22 at 09:30	14207	29.06.22 को 12:30 बजे	315.97	08.07.22	334.45	29.06.22
हरियाणा	12327	08.07.22 at 12:30	12768	28.06.22 को 11:56 बजे	261.15	08.07.22	266.15	07.07.21
राजस्थान	12332	09.07.22 at 13:00	16012	28.06.22 को 14:00 बजे	262.09	09.07.22	323.84	09.06.22
दिल्ली	7517	08.07.22 at 15:33	7695	29.06.22 को 15:10 बजे	149.25	08.07.22	153.52	28.06.22
उत्तर प्रदेश	25951	15.07.22 at 23:00	25755	07.06.22 को 21:00 बजे	541.77	08.07.22	536.97	09.06.22
उत्तराखंड	2342	04.07.22 at 21:00	2594	14.06.22 को 21:00 बजे	50.97	16.07.22	54.27	15.06.22
हिमाचल प्रदेश	1732	06.07.22 at 10:00	2030	07.01.22 को 10:00 बजे	35.45	05.07.22	36.91	28.06.22
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	2718	13.07.22 at 21:00	2826	03.02.22 को 19:00 बजे	54.09	19.07.22	59.95	17.01.22
चंडीगढ़	401	19.07.22 at 15:30	426	08.07.21 को 15:00 बजे	7.82	05.07.22	8.41	08.07.21
उत्तरी क्षेत्र #	75164	08.07.22 at 23:05	77006	28.06.22 को 11:50 बजे	1667.96	08.07.22	1737.09	28.06.22

उत्तरी क्षेत्र अधिकतम मांग (Demand Met) as per SCADA Data

क्षेत्रीय विद्युत आपूर्ति (Demand) जुलाई 2021 बनाम जुलाई 2022 (As per 5 Minute SCADA data)

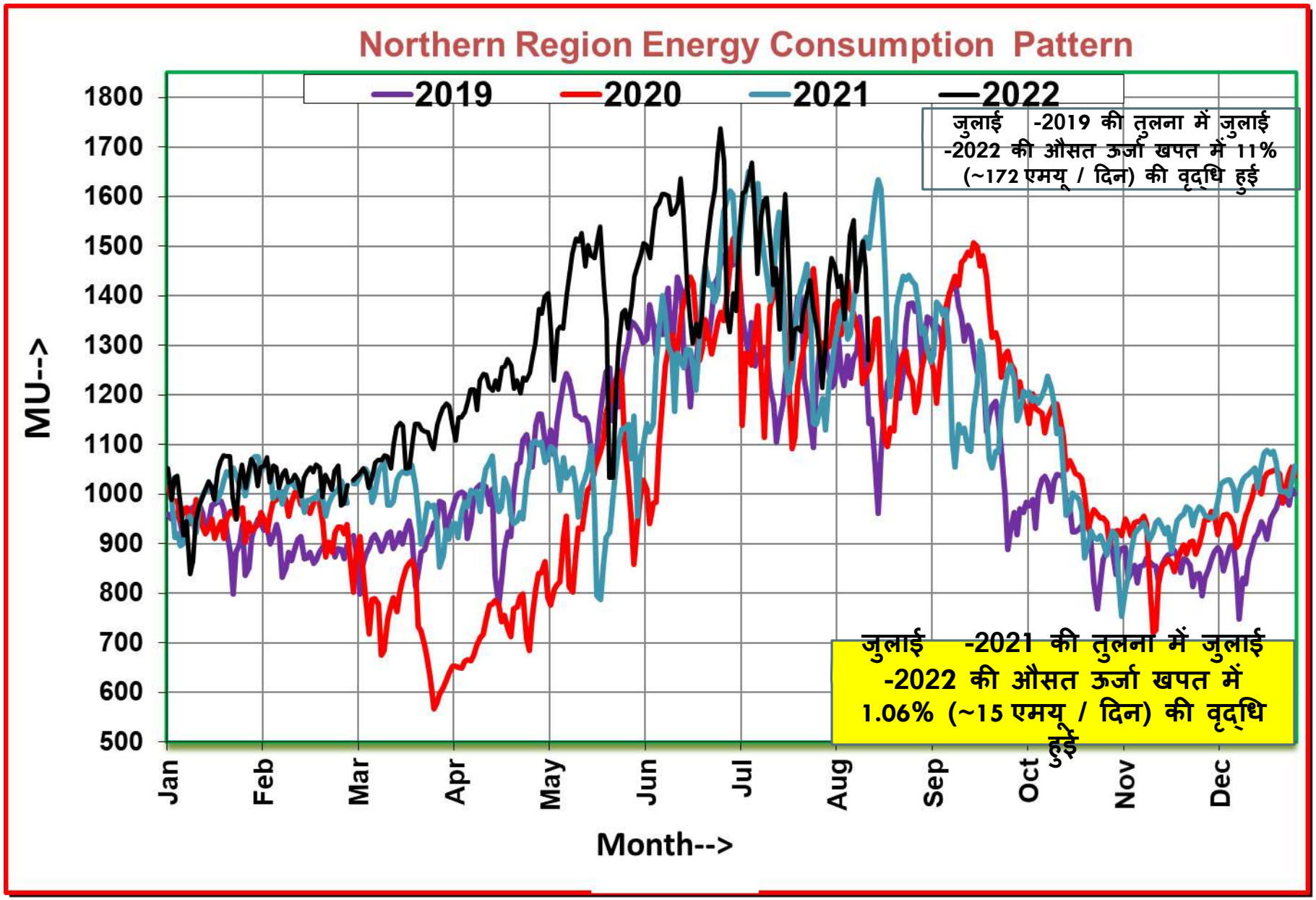


जुलाई -2021(59764MW) की तुलना में जुलाई -2022(60486MW) की औसत विद्युत आपूर्ति में 1.2% (~722MW) की वृद्धि हुई

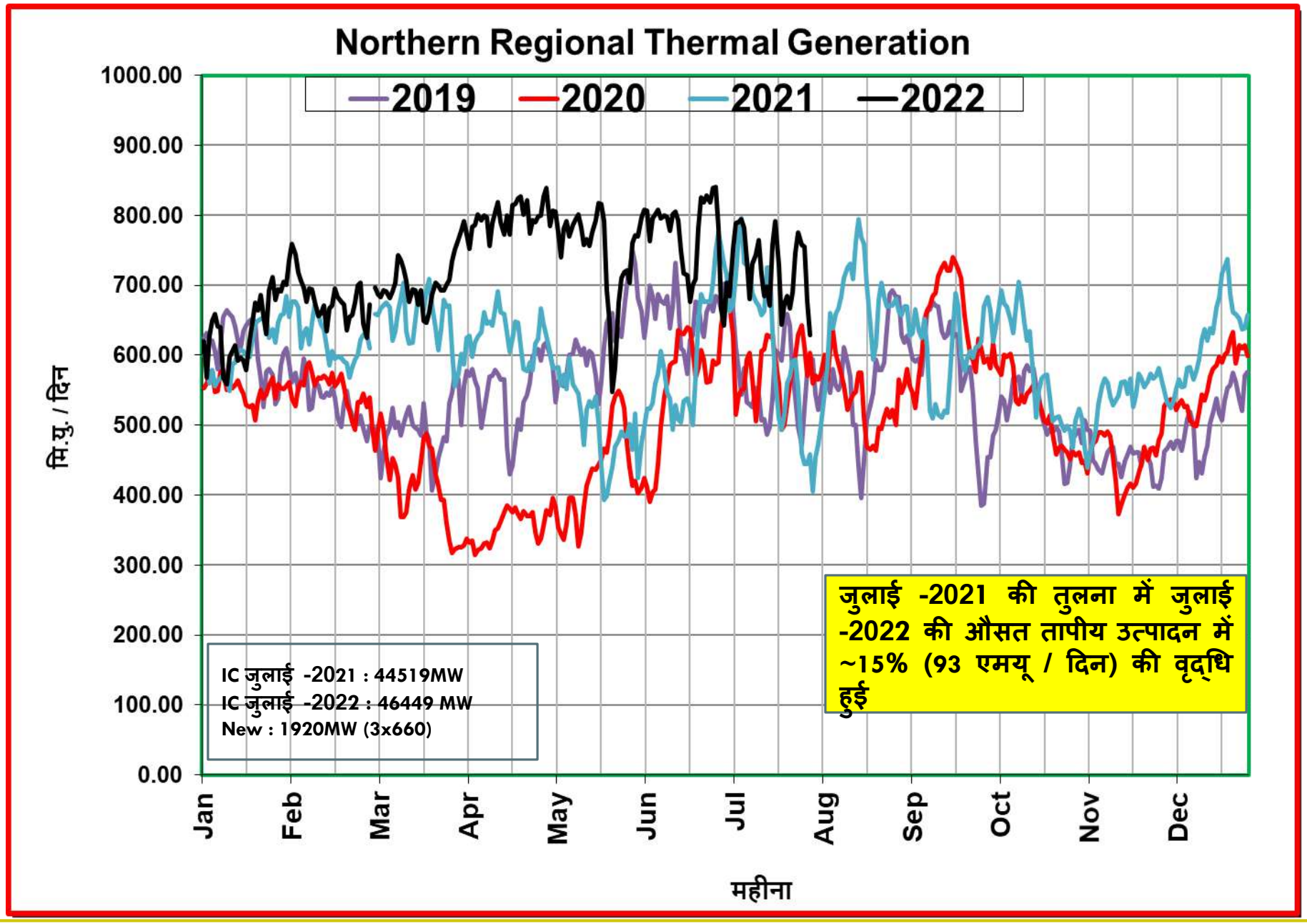
उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि(% में) जुलाई -2022/ जुलाई -2021 / जुलाई -2020

राज्य	जुलाई -2020	जुलाई -2021	जुलाई -2022	% वृद्धि (जुलाई -2021 vs जुलाई -2020)	% वृद्धि (जुलाई -2022 vs जुलाई -2021)
पंजाब	240.74	264.95	264.26	10.06%	-0.26%
हरियाणा	189.42	209.66	209.38	10.68%	-0.13%
राजस्थान	251.40	262.61	233.67	4.46%	-11.02%
दिल्ली	106.46	119.57	125.03	12.32%	4.57%
उत्तर प्रदेश	417.45	450.13	480.94	7.83%	6.84%
उत्तराखंड	39.81	43.89	46.61	10.23%	6.20%
चंडीगढ़	5.86	6.49	6.56	10.89%	0.99%
हिमाचल प्रदेश	27.83	28.96	32.17	4.07%	11.06%
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	45.33	46.61	49.47	2.83%	6.15%
उत्तरी क्षेत्र	1324.30	1432.88	1448.09	8.20%	1.06%

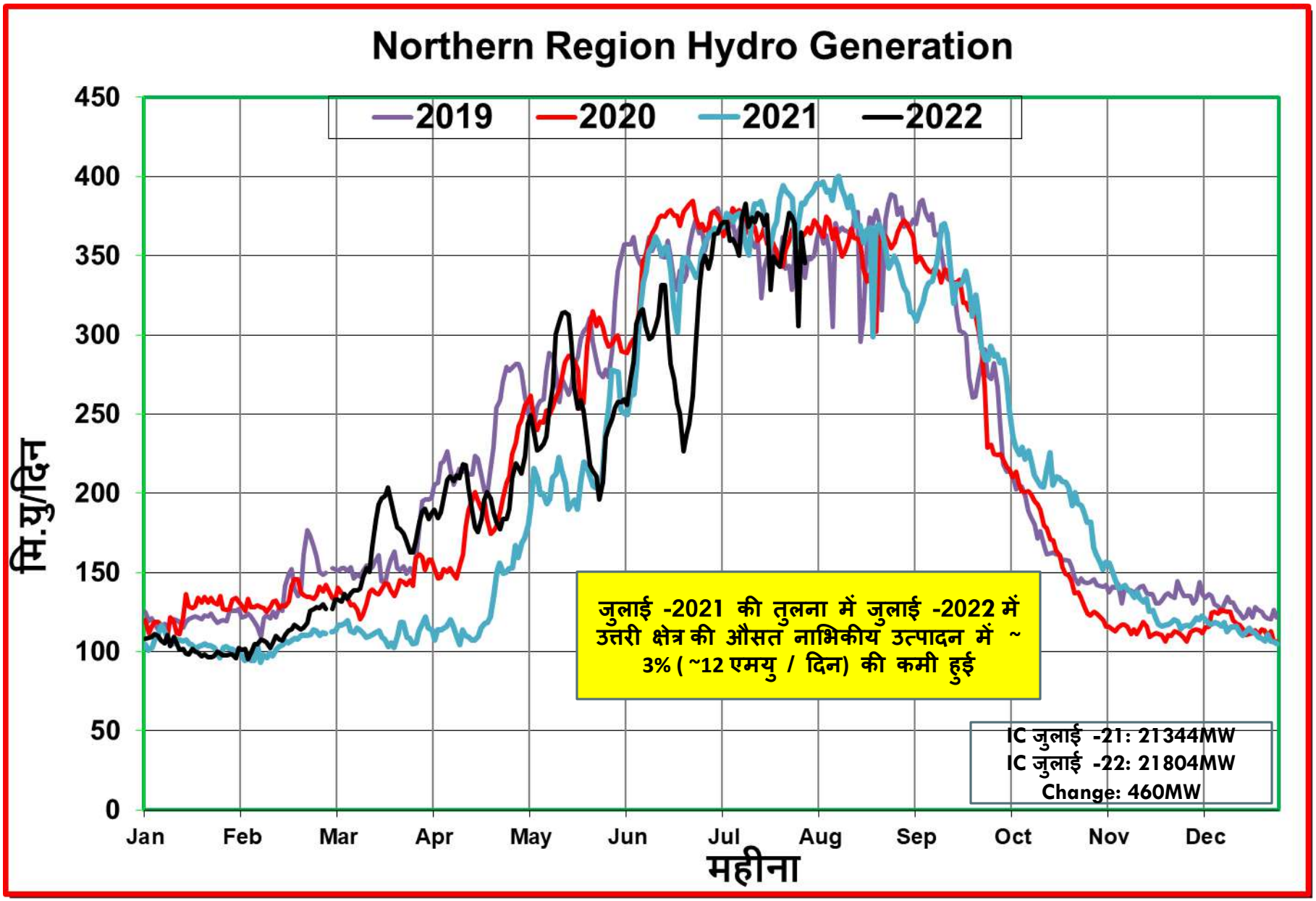
उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



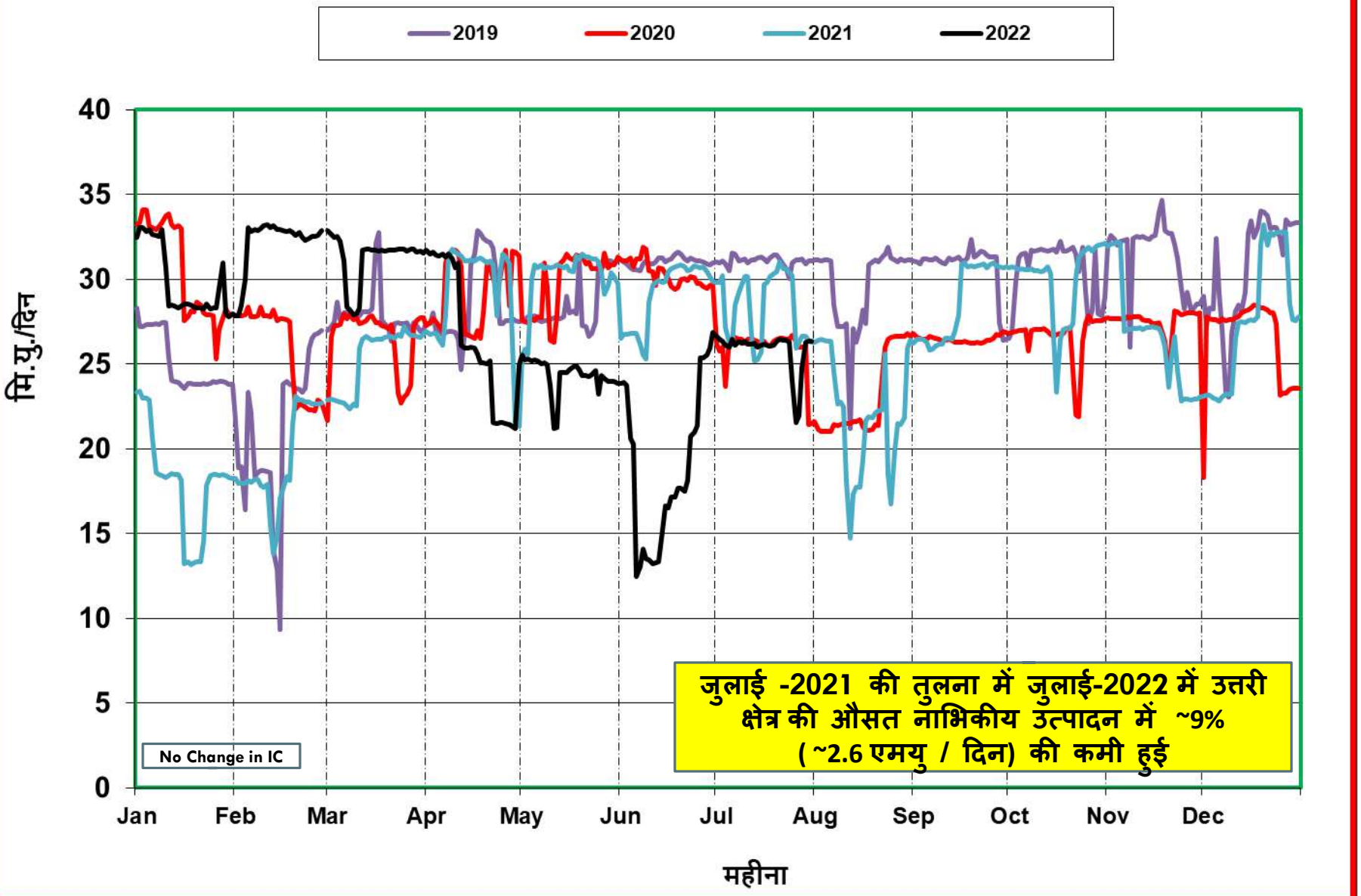
उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(Mus/Day)



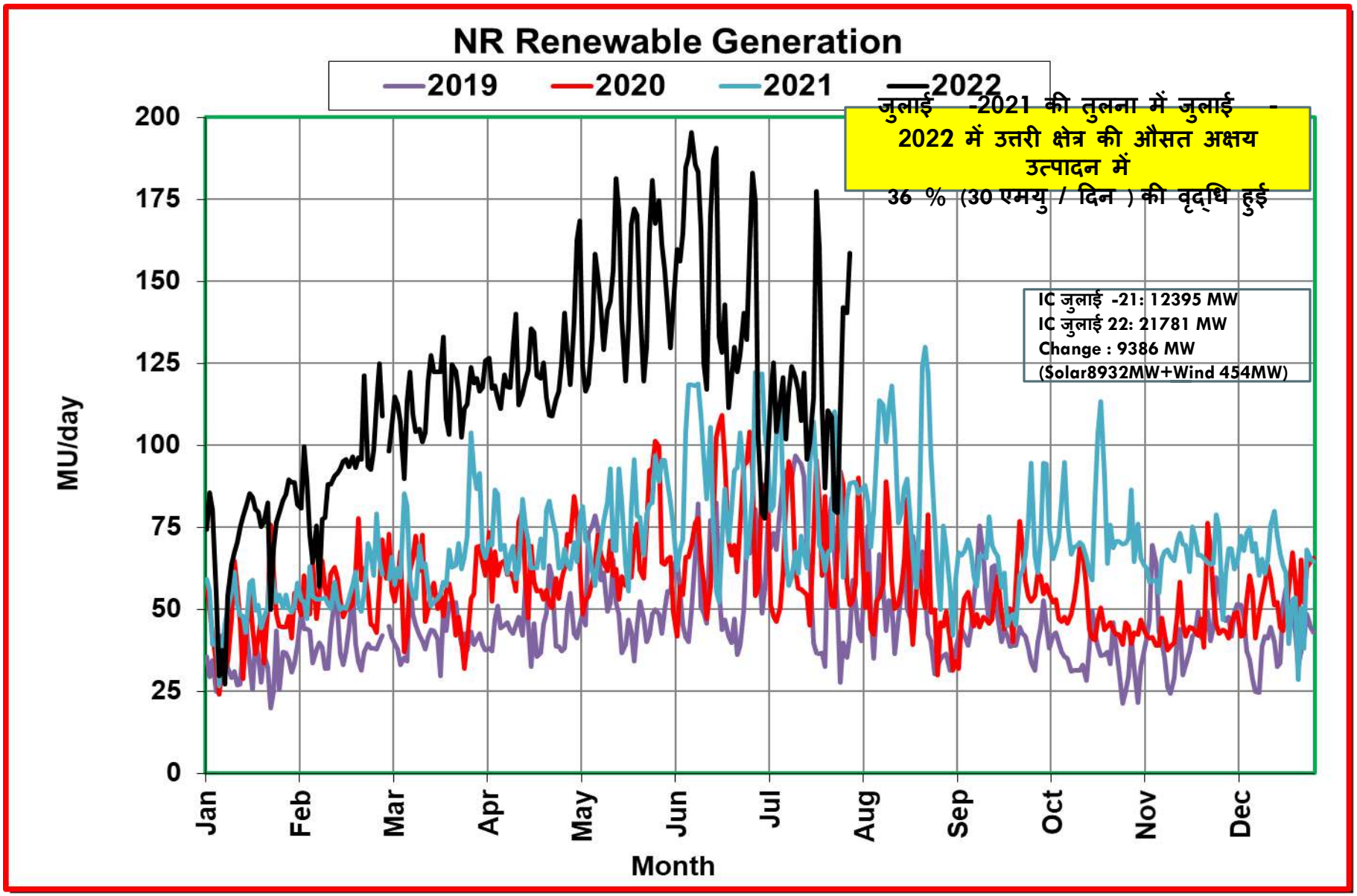
उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(Mus/Day)



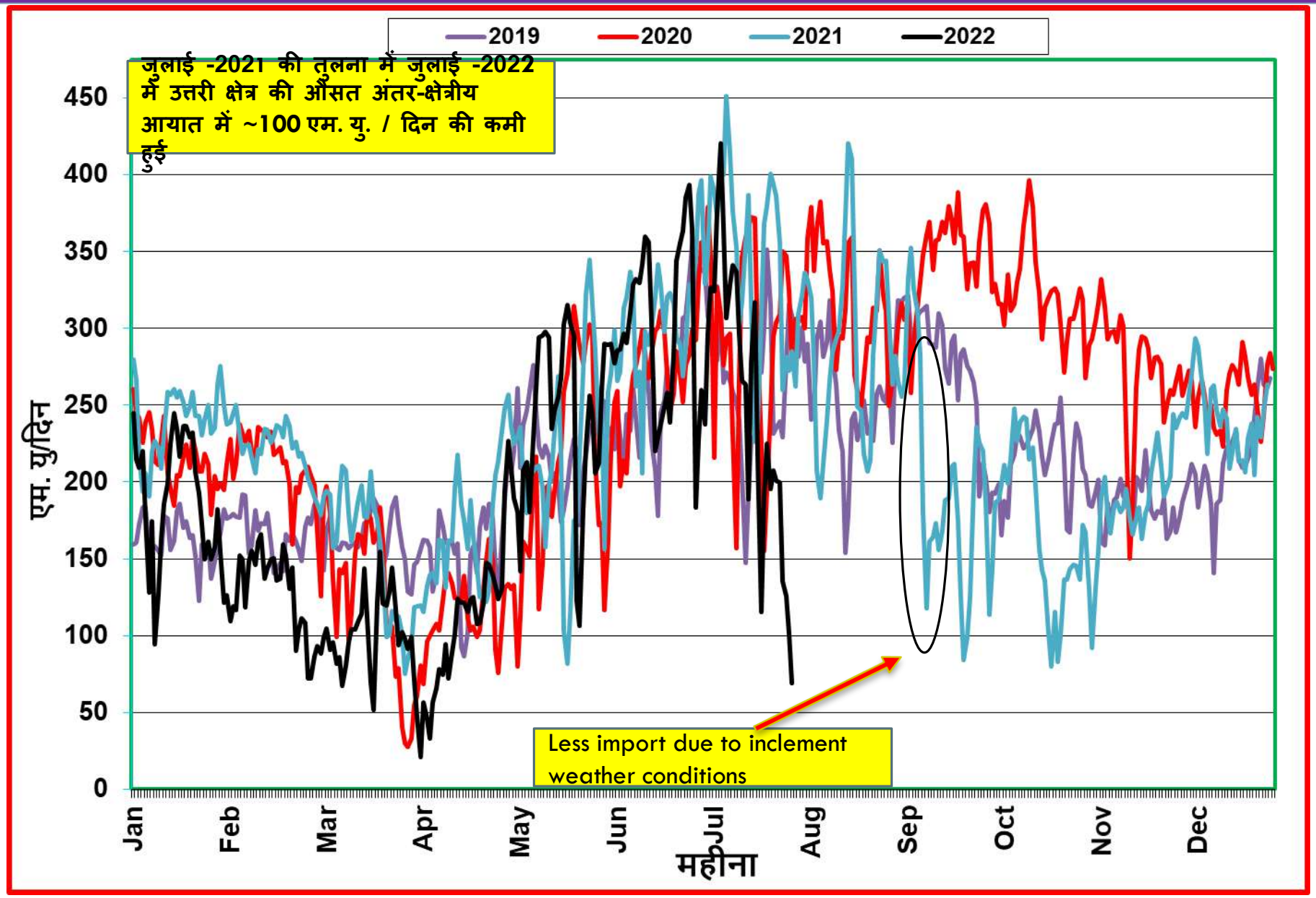
उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (Mus/Day)



उत्तरी क्षेत्र की अक्षय (Renewable) उत्पादन की स्थिति (Mus/Day)



अंतर-क्षेत्रीय आयात(Mus/Day) की स्थिति



RE Penetration

	Maximum Daily MU Penetration			
	July '2022		Record upto June'2022	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	3.37	24-07-2022	12.28	01-04-2020
Rajasthan	33.67	21-07-2022	36.47	22-10-2021
UP	2.12	03-07-2022	4.07	30-10-2021
NR	13.07	31-07-2022	13.91	21-05-2022

	Maximum Instantaneous Penetration in MW			
	July '2022		Record upto June'2022	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	5.28	21-07-2022	26.87	22-04-2020
Rajasthan	54.64	21-07-2022	68.38	31-03-2020
UP	8.06	24-07-2022	15.13	01-04-2021
NR	29.97	31-07-2022	32.84	22-02-2022

वास्तविक सारांश - जुलाई -2021 बनाम जुलाई -2022

	जुलाई -2021 (मि.यु. /दिन)	जुलाई -2022 (मि.यु. /दिन)	जुलाई माह में वृद्धि (मि.यु./दिन)
तापीय (Thermal) उत्पादन	627.42	720.59	93.18
जलीय (Hydro) उत्पादन	373.57	361.48	-12.08
नाभिकीय (Nuclear) उत्पादन	28.44	25.85	-2.59
अंतर-क्षेत्रीय (Inter-Regional) कुल आयात	350.18	249.66	-100.52
अक्षय (Renewable) उत्पादन	83.336	113.579	30.24
कुल उपलब्धता	**1462.95**	**1471.16**	**8.23**

B.20

Outage Summary For July 2022									
CONSTITUENTS	PLANNED (A)	FORCED OUTAGES (B=C+D)	EMERGENCY SHUTDOWNS (C)	TRIPPING (D)	% PLANNED SHUTDOWNS (A/(A+C))	% EMERGENCY SHUTDOWNS(C/(A+C))	% ESD SHUTDOWNS(C/B)	% TRIPPING (D/B)	TOTAL OUTAGES (A+B)
POWERGRID	182	218	124	94	59.5%	40.5%	56.9%	43.1%	400
UPPTCL	77	165	56	109	57.9%	42.1%	33.9%	66.1%	242
RRVPNL	63	88	34	54	64.9%	35.1%	38.6%	61.4%	151
HVPNL	27	42	23	19	54.0%	46.0%	54.8%	45.2%	69
BBMB	11	37	12	25	47.8%	52.2%	32.4%	67.6%	48
PSTCL	8	38	10	28	44.4%	55.6%	26.3%	73.7%	46
DTL	7	17	10	7	41.2%	58.8%	58.8%	41.2%	24
PTCUL	2	21	5	16	28.6%	71.4%	23.8%	76.2%	23
AEPL, Avaada	9	12	0	12	100.0%	0.0%	0.0%	100.0%	21
PFTL	15	4	1	3	93.8%	6.3%	25.0%	75.0%	19
Adani SL	7	9	5	4	58.3%	41.7%	55.6%	44.4%	16
PDD JK	2	13	1	12	66.7%	33.3%	7.7%	92.3%	15
Renew Power	4	8	5	3	44.4%	55.6%	62.5%	37.5%	12
Cleansolar_Jodhpur	0	10	3	7	0.0%	100.0%	30.0%	70.0%	10
THAR SURYA1	7	2	0	2	100.0%	0.0%	0.0%	100.0%	9
NRSS XXIX	8	0	0	0	100.0%	0.0%	0.0%	0.0%	8
GPTL	6	1	1	0	85.7%	14.3%	100.0%	0.0%	7
Tata Power	2	4	1	3	66.7%	33.3%	25.0%	75.0%	6
ABC RJ01	1	4	1	3	50.0%	50.0%	25.0%	75.0%	5
SBSRPC-11	4	1	0	1	100.0%	0.0%	0.0%	100.0%	5
ACME	0	5	2	3	0.0%	100.0%	40.0%	60.0%	5
NTPC	0	5	0	5	0.0%	0.0%	0.0%	100.0%	5
Saurya Urja	1	3	0	3	100.0%	0.0%	0.0%	100.0%	4
EDEN (ERCPL)	3	0	0	0	100.0%	0.0%	0.0%	0.0%	3
ESUCRL	2	1	0	1	100.0%	0.0%	0.0%	100.0%	3
NTPC SL	3	0	0	0	100.0%	0.0%	0.0%	0.0%	3
PKTSL	1	1	1	0	50.0%	50.0%	100.0%	0.0%	2
Azure	0	2	1	1	0.0%	100.0%	50.0%	50.0%	2
ARP1PL	0	2	2	0	0.0%	100.0%	100.0%	0.0%	2
MAHINDRA	0	2	1	1	0.0%	100.0%	50.0%	50.0%	2
PKTCL	0	2	2	0	0.0%	100.0%	100.0%	0.0%	2
PAPTL	1	0	0	0	100.0%	0.0%	0.0%	0.0%	1
HPPTCL	0	1	1	0	0.0%	100.0%	100.0%	0.0%	1
POWERLINK	0	1	1	0	0.0%	100.0%	100.0%	0.0%	1
SEKURA	0	1	0	1	0.0%	0.0%	0.0%	100.0%	1
TOTAL	**453**	**720**	**303**	**417**	**59.9%**	**40.1%**	**42.1%**	**57.9%**	**1173**

B.20

OUTAGE SUMMARY OF LAST THREE MONTHS

MONTH	PLANNED	FORCED OUTAGES	EMERGENCY SHUTDOWNS	TRIPPING	% PLANNED as of TOTAL S/D	% EMERGENCY SHUTDOWNS	TOTAL OUTAGES (A+B)
	(A)	(B=C+D)	(C)	(D)	(A/(A+C))	(C/(A+C))	
Apr-22	705	649	244	405	74.3%	25.7%	1354
May-22	666	1060	366	694	64.5%	35.5%	1726
June-22	640	766	363	403	63.8%	36.2%	1406
July-22	**453**	**720**	**303**	**417**	**59.9%**	**40.1%**	**1173**

B.20

New Elements First Time Charged During July 2022

S. No.	Type of transmission element	Total No
1	400kV lines	01
2	220kV lines	02
4	ICTs	05
6	765kV, 400kV, 220 kV Bays & Buses	31
Total New Elements charged		39

B.20

TRANSMISSION LINES						
S.NO.	**Agency/Owner**	**LINE NAME**	**Length (KM)**	**Conductor Type**	**DATE**	**Remarks**
1	NTPC_KOLAYAT SL	400kV Bhadla_2 (PG)-Kolayat Solar NTPC_1 (NTPC_KOLAYAT SL)-1	29	Quad Moose	23-Jul-2022	
2	HPPTCL	220kV Dehan (HP)-Hamirpur(PG)-1	57.939	Twin Moose	26-Jul-2022	Line was earlier anti-theft charged from Hamirpur end on 09.06.2022.
3	HPPTCL	220kV Dehan (HP)-Hamirpur(PG)-2	57.939	Twin Moose	26-Jul-2022	

ICTs/ GTs / STs							
S.NO.	**Agency/Owner**	**SUB-STATION**	**ICT NO**	**Voltage Level (kV)**	**CAPACITY (MVA)**	**DATE**	**Remarks**
1	UPPTCL	400/220/33kV, 500 MVA MVA, 3-Phase, TOSHIBA, ICT - 3 at Aligarh(UP)	3	400/220/33kV	500 MVA	08-Jul-2022	New
2	TPGEL	220/33kV, 115MVA MVA, 3-Phase, Toshiba, Power Transformer - 1 at TATA Noorsar SL_BKN PG (TPGEL)	1	220/33	115MVA	22-Jul-2022	New
3	TPGEL	220/33kV, 115MVA MVA, 3-Phase, Toshiba, Power Transformer - 2 at TATA Noorsar SL_BKN PG (TPGEL)	2	220/33	115MVA	22-Jul-2022	New
4	NTPC_KOLAYAT SL	400/33kV, 150MVA MVA, 3-Phase, Toshiba T&D India Pvt Ltd, India, Power Transformer - 1 at Kolayat Solar NTPC_1 (NTPC_KOLAYAT SL)	1	400/33	150MVA	23-Jul-2022	New
5	NTPC_KOLAYAT SL	400/33kV, 150MVA MVA, 3-Phase, Toshiba T&D India Pvt Ltd, India, Power Transformer - 2 at Kolayat Solar NTPC_1 (NTPC_KOLAYAT SL)	2	400/33	150MVA	24-Jul-2022	New

B.20

GENERATING UNITS							
SL. NO.	Location	OWNER/UNIT NAME	Unit No/Source	Capacity added (MW)	Total/Installed Capacity (MW)	DATE	Remarks
1	Rajasthan	Thar Surya1_Bikaner (PG)	Solar	9	300	31.07.2022	
2	Rajasthan	Tata Power Green Energy(TPGEL)_Bikaner (PG)	Solar	225	225	26.07.2022	
3	Rajasthan	Kolayat Solar Power Plant NTPC_Bhadla 2 (PG)	Solar	250	250	26.07.2022	
4	Rajasthan	AHEJ4L PSS3(Adani)_Fatehgarh I(Adani)	Wind	6.4	250	04.07.2022	
5	Rajasthan	AHEJ4L PSS4(Adani)_Fatehgarh I(Adani)	Wind	6.6	260	08.07.2022	
6	Rajasthan	AHEJ4L PSS4(Adani)_Fatehgarh I(Adani)	Wind	2.1	260	07.07.2022	
		Total Solar Generation addition		**484**			
		Total Wind Generation addition		**15.1**			


धन्यवाद

Annexure-B.II

A. Details of Long Duration Transmission elements Outage :-

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

B. Details of Long Duration Generating Units Outage :-

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