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/106/01/2022/4325-4366 दिनांक: 10.06.2022

**विषय:** उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 195वीं बैठक का कार्यवृत |

**Subject:** Minutes of 195th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 195वीं बैठक दिनांक 24.05.2022 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 |

195th meeting of the Operation Co-ordination Sub-Committee of NRPC was held on 24.05.2022. 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

10/6/2022

(ऋतुराज पाण्डेय)
कार्यपालक अभियंता

सेवा में,

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

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195th meeting of OCC of NRPC was held on 24.05.2022 through video conferencing.

**खण्ड-क: उ.क्षे.वि.स. PART-A:NRPC**

## 1. Confirmation of Minutes

Minutes of 194th OCC meeting was issued on 06.05.2022. OCC confirmed the minutes.

## 2. Review of Grid operations of April 2022

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

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

- **Delhi**

In April-2022, the variation between actual and anticipated Energy consumption is (+) 10.37%. The positive variation in energy consumption is mainly due to unusual hot weather condition in April-2022

- **Punjab**

It is intimated that actual maximum demand and actual energy requirement are more as compared to anticipated maximum demand and anticipated energy requirement respectively because of high demand of AP and all other categories due to dry season and heavy temperature in the state of Punjab during month of April 2022.

- **Himachal Pradesh**

The Anticipation in Energy requirement & Peak Demand in respect of Himachal Pradesh for the month of April 2022 came on the higher side due to consistent Dry weather

- **Uttar Pradesh**

Actual Energy Requirement was higher than anticipated due to Early heat wave, Distribution network / supply not affected due to low wind speed and Unusual absence of thunder storm/dust storm.

- **Uttarakhand**

Reasons for significant deviation of actual demand from anticipated figures during the month of April 2022 is mainly due to sudden temperature rise (onset of early summers) in the month of April 2022 in comparison to the historical data as well as increased demand after POST-COVID situations.

- **J&K and Ladakh**

There are shortages in terms of both energy and peak for the month of April due to non-availability of power w.r.t. demand. Because of higher temperature than

normal temperature in April month and low availability of power from J&K Hydro sources (JKPDCL including Baglihar).

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 April, 2022 was enclosed in the agenda and same was discussed in the meeting.

Significant deviation in case of Haryana was observed.

## 3. Maintenance Programme of Generating Units and Transmission Lines

3.1. The maintenance programme of generating units and transmission lines for the month of June 2022 was deliberated in the meeting on 23.05.2022.

| Element Name | Owner | Reason | Requested From | Requested To | Decision of OCC |
|---|---|---|---|---|---|
| 765KV JHATIKRA ALIGARH-I | POWERGRID | For NHAI diversion work. Shutdown has already been availed and this request is only for regularisation of availed shutdown. | 30-Apr-2022 09:00 Hrs | 13-May-2022 18:00 Hrs | OCC forum agreed for regularisation of availed shutdown. |

## 4. Planning of Grid Operation

4.1. **Anticipated Power Supply Position in Northern Region for June 2022**

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

| State / UT | Availability / Requirement | Revised Energy (MU) | Revised Peak (MW) | Date of revision |
|---|---|---|---|---|
| CHANDIGARH | Availability | 180 | 410 | No Revision submitted |
| | Requirement | 160 | 380 | |
| | Surplus / Shortfall | 20 | 30 | |
| | % Surplus / Shortfall | 12.5% | 7.9% | |
| DELHI | Availability | 5138 | 7500 | 23-May-22 |
| | Requirement | 4213 | 7500 | |
| | Surplus / Shortfall | 925 | 0 | |
| | % Surplus / Shortfall | 22.0% | 0.0% | |

| State / UT | Availability / Requirement | Revised Energy (MU) | Revised Peak (MW) | Date of revision |
|---|---|---|---|---|
| HARYANA | Availability | 5620 | 11720 | 16-May-22 |
| | Requirement | 6941 | 12030 | |
| | Surplus / Shortfall | -1321 | -310 | |
| | % Surplus / Shortfall | -19.0% | -2.6% | |
| HIMACHAL PRADESH | Availability | 1020 | 1621 | 12-May-22 |
| | Requirement | 1009 | 1620 | |
| | Surplus / Shortfall | 11 | 1 | |
| | % Surplus / Shortfall | 1.1% | 0.1% | |
| J&K and LADAKH | Availability | 2070 | 3530 | No Revision submitted |
| | Requirement | 1660 | 2810 | |
| | Surplus / Shortfall | 410 | 720 | |
| | % Surplus / Shortfall | 24.7% | 25.6% | |
| PUNJAB | Availability | 6340 | 12160 | 23-May-22 |
| | Requirement | 8454 | 15500 | |
| | Surplus / Shortfall | -2114 | -3340 | |
| | % Surplus / Shortfall | -25.0% | -21.5% | |
| RAJASTHAN | Availability | 9420 | 18840 | 23-May-22 |
| | Requirement | 8560 | 15000 | |
| | Surplus / Shortfall | 860 | 3840 | |
| | % Surplus / Shortfall | 10.0% | 25.6% | |
| UTTAR PRADESH | Availability | 14850 | 25500 | 10-May-22 |
| | Requirement | 14550 | 25500 | |
| | Surplus / Shortfall | 300 | 0 | |
| | % Surplus / Shortfall | 2.1% | 0.0% | |
| UTTARAKHAND | Availability | 1305 | 2420 | 06-May-22 |
| | Requirement | 1320 | 2475 | |
| | Surplus / Shortfall | -15 | -55 | |
| | % Surplus / Shortfall | -1.1% | -2.2% | |
| NORTHERN REGION | Availability | 45943 | 76900 | |
| | Requirement | 46867 | 76100 | |
| | Surplus / Shortfall | -923 | 800 | |
| | % Surplus / Shortfall | -2.0% | 1.1% | |

## 5. Submission of breakup of Energy Consumption by the states

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

| State / UT | From | To |
|---|---|---|
| Delhi | Apr-2018 | Mar-2022 |
| Haryana | Apr-2018 | Mar-2022 |
| Himachal Pradesh | Apr-2018 | Feb-2022 |
| Punjab | Apr-2018 | Jan-2022 |
| Rajasthan | Apr-2018 | Mar-2022 |
| Uttar Pradesh | Apr-2018 | Jan-2022 |
| Uttarakhand | Apr-2018 | Dec-2021 |

5.2. Representatives of Uttarakhand, Uttar Pradesh and Punjab were requested to submit the pending data.

5.3. 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. Automatic Demand Management System

6.1. Forum was informed that as decided in the 175th OCC meeting, to conduct separate meeting with states, nominations are pending from PuVVNL, PVVNL, MVVNL, DVVNL, UPPTCL, UPCL, PTCUL, SLDC Uttarakhand, and J&K. They were requested on 01.03.2021 to submit nominations for the meeting.

6.2. Meetings on ADMS implementation roadmap have been held with the officers of Haryana, HP, Punjab and UP on 05.02.2021, 19.02.2021, 05.03.2021 and 14.07.2021 respectively. In these meetings, issues and apprehensions on ADMS were discussed along with vital aspects like addressing the commercial issues, basic architecture for scheme and funding possibilities for the scheme.

6.3. As per the request of states for DPR of any state that has got PSDF support for ADMS, website link of PSDF Sectt. has been shared with Haryana, Himachal Pradesh, Punjab and Uttar Pradesh for accessing DPR. SLDCs were also requested to expedite the submission of pending nominations.

6.4. In 186th OCC, In-charge, NRLDC stated that as per IEGC, implementation of ADMS is mandatory. It helps in reducing DSM charges also. States must take it seriously.

6.5. MS, NRPC stated that non-implementation of ADMS by states is indistinguishably non-adherence to directions of CERC. He enquired from NRLDC whether POSOCO has made any communication with CERC regarding non-adherence of its deadline i.e., 31.06.2016. NRLDC representative stated that he would look into and inform in next meeting.

6.6. NRPC representative added that initial deadline for ADMS implementation was 1st January 2011 as per para 5.4.2 (d) of IEGC. Later, CERC has taken suo-motu cognizance of non-implementation of ADMS by states and given 31.06.2016 as deadline vide its order dt. 31.12.2015 in petition no. 5/SM/2014. Implementation deadline given by the statutory and regulatory body need to

complied by concerned SLDC / SEB / distribution licensee as per regulation no. 5.4.2 (a) & (b) of IEGC. Moreover, hand holding process for project proposal preparation in respect of four NR states has already been done by NRPC

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

6.8. In 187th OCC, NRLDC representative quoted the texts of CERC order dt. 31.12.2015 in petition no. 5/SM/2014. He apprised the status of ADMS implementation till 2015. Further, he requested the states to update the status so that NRLDC may file petition in CERC on the basis of compiled status.

6.9. In 188th OCC, NRLDC informed that it has not received comments from states in this matter. Accordingly, all SLDC/DISCOMs are requested to furnish the latest status of ADMS implementation in their respective control areas latest by 31st October 2021 to NRLDC. Status as received till 31.10.2021 would be reported to CERC by NRLDC.

6.10. In the 189th OCC, NRLDC informed that status of ADMS has been sent to CERC twice (Aug'16 and Sep'16) in the past. The same is recorded in MoM of 127th OCC also.

6.11. NRLDC representative informed that CERC will be apprised again within next 10 days about the latest status of ADMS as per the updated information available with them.

6.12. In the 190th OCC, NRLDC representative informed that vide letter dated 09.12.2021 (enclosed as Annexure-A.0 of minutes of 190th OCC), CERC has been apprised about the latest status of ADMS as per the updated information available with them.

6.13. In 192nd OCC, forum was intimated that no further update has been received on this matter. Rajasthan representative intimated that ADMS implementation schedule in their state has been extended till Dec'22 and this agenda may be continued in OCC meetings for monitoring the ADMS implementation schedule.

6.14. In 193rd OCC, Rajasthan representative informed that first trail is tentatively scheduled in May 2022.

6.15. In 194th OCC, Rajasthan representative reiterated its commitment for the first trials in May 2022. MS, NRPC asked representatives of other states to regularly update the status on ADMS implementation.

6.16. In the meeting (195th OCC), Rajasthan SLDC representative informed that in consultation with state STU, ADMS implementation schedule in their state has been extended till Dec'22.

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

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

7.2. 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.

## 8. NR Islanding scheme

8.1. 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.

8.2. In 187$^{th}$ 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 187$^{th}$ OCC.

8.3. 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.

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

8.5. 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 189$^{th}$ OCC agenda.

8.6. In the 189$^{th}$ OCC, NRPC representative highlighted no progress from states of Punjab, Uttarakhand, Himachal, J&K, Ladakh.

8.7. 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.

8.8. 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.

8.9. 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.

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

8.11. 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 30$^{th}$ Nov, 2021. He also set timeline of 30$^{th}$ 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.

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

8.13. 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.

8.14. 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.

8.15. 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.

8.16. 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.

8.17. 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.

8.18. 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.

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

8.20. 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.

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

8.22. 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.

8.23. 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.

8.24. 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.

8.25. 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.

8.26. 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.

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

8.28. 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.

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

8.30. 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.

8.31. 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.

8.32. 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.

8.33. 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.

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

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

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

8.37. 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.

8.38. In the meeting (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.

8.39. 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.

8.40. 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.

8.41. 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.

8.42. In the meeting (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.

8.43. 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.

**9. Coal Supply Position of Thermal Plants in Northern Region**

9.1. In the meeting, NRPC representative apprised the forum about the coal stock position of generating stations in northern region during current month (till 10th May 2022).

**10. Requesting Generating companies to furnish Daily/Monthly Generation and outages Data online at National Power Portal (NPP) (Agenda by CEA)**

10.1. NRPC representative apprised forum that OPM Division, CEA vide letter dated 20.04.2022 (Copy of the letter is attached as Annexure-A.III. of agenda) have highlighted a list of generating companies in Northern region that are not furnishing Daily/Monthly Generation and outages Data online at National Power Portal (NPP)

10.2. NRPC representative asked the generating companies of NR mentioned in the above cited letter to update the data online on NPP portal regularly. Further, in case generating stations are facing any problem in feeding the data online at NPP Portal, they may contact the officials mentioned in the cited letter for further assistance.

10.3. NHPC representative informed that presently Parbati-II HPS is not commissioned and CEA vide mail dated 22.03.2022 (copy of letter enclosed as **Annexure-A.II**) has intimated that entry of Daily Generation Data on NPP portal is not required for those units whose commissioning has not been done yet. The said information has already been communicated by NHPC to OPM division, CEA in regard to Parbati-II HPS.

10.4. NTPC representative also informed that Tapovan Vishnugad HPS is under construction. Further, UPRVUNL informed that Obra-C STPP, Panki TPS Ext and Jawaharpur STPP is also under construction.

10.5. Uttarakhand representative informed that PPA has been terminated and connectively has been repealed by SERC for Beta Infratech Pvt. Ltd. Further, he informed that they have mailed Gama Infraprop Pvt. Ltd. asking them to kindly take up the matter will CEA and timely upload the data on NPP portal.

10.6. NPCIL representative that Unit 1 of RAPS-A is not operational since 2004 and is under process of decommissioning.

10.7. Uttar Pradesh representative informed that Ghatampur TPP is under construction.

10.8. OCC forum noted the above information.

**11. Water requirement by Jal Shakti Vibhag, Himachal Pradesh from Chamera-1**

**Dam (Agenda by NHPC)**

11.1. NRPC representative informed that according to the discussions in 193rd OCC, as there will be energy loss (0.28 MU approx. per year) from Chamera-1 Power Station and with regard to energy loss as there is a departure from PPA, the aforesaid matter was communicated to GM Division, CEA by NRPC Sectt. vide letter dated 21.04.2022.

11.2. NHPC representative informed that cited information has been noted by CEA and GM, division, CEA has no observation on this matter.

11.3. Further, NHPC representative apprised forum that similar case regarding water requirement by Indian Army from Chamera I Dam was discussed in 96$^{th}$ OCC meeting and OCC agreed for allowing Army to lift six lacs Gallon water per day from the upstream of Chamera Stage 1 Power Station Dam.

11.4. OCC agreed to NHPC proposal in accordance with decision in 96$^{th}$ OCC meeting.

**12. SPS implemented at 400kV S/Stn Mundka (Agenda by DTL)**

12.1. NRLDC representative mentioned that SPS is required as with demand of around 7000 MW in Delhi, loading of 400/220 kV 3*315 MVA ICTs at Mundaka is close to N-1 contingency limits.

12.2. Further, NRLDC representative also stated that DMRC load is also being disconnected as per the current logic and as DMRC being essential load will be disrupted on operation of this SPS logic. On this point, Delhi representative agreed that DMRC load will be removed from the current logic and other 66kV feeders will be tripped. It was decided that all three ICTs will be covered under SPS and the DMRC feeder would be excluded from SPS logic.

**13. Regarding reduction of bus fault level on 220kV Bus at 765/400/220kV PGCIL Substation at Bhadla. (Agenda by Saurya Urja Company of Rajasthan Ltd)**

13.1. NRPC representative presented the matter to the forum that 03 nos. of ICTs of SUCRL have failed since May 2021. SUCRL proposed for reduction of fault current magnitude from the source side to reduce fault current at SUCRL end by keeping bus coupler breaker open.

13.2. CTU representative reiterated its observation (copy attached as **Annexure-A.III**) on the request of SUCRL that the fault current of 3kA was within the maximum design fault of 3.28kA as per GTP provided and there might have been internal fault in the transformer during fault period. As the fault current through transformer is governed by transformer impedance, which is characterized by the design of the transformer and not bus fault level. As per the short circuit studies conducted and shared, this is clearly evident that fault level current through transformer in all cases was less than rated level in simulated cases of 33kV faults. Therefore, Bhadla PG 220kV bus

fault level is not impacting the through fault current of transformer more than rated level in all studied cases as shared. Further Bhadla PS also has many other RE developers (+2600 MW excluding Saurya urja) feeding power through 33/220kV transformers who have not reported any such issue.

13.3. NRLDC representative summarily denied the request of SUCRL from the operator point of view as single bus scheme for long period of six months can severely hamper the reliability and operation of the system.

13.4. In view of above discussion, the forum denied the request of SUCRL for opening of bus coupler breaker for six months and requested SUCRL to rope in the transformer manufacturer to get the transformer design reviewed.

**14. Regarding certification of availability of assets under SLTS project since 31.10.2019 (Agenda by NR2-Powergrid)**

14.1. NRPC representative apprised forum that NR2-Powergrid vide mail dated 17.05.2022 (copy enclosed as Annexure-A.VI. of agenda) has informed that 220 kV Srinagar-Leh Transmission System is re-designated as ISTS vide MoP letter ref. No. 3/18/2011- Trans Vol (2) dated 23.03.2021 and was transferred to POWERGRID with effect from 31.10.2019 and henceforth, Powergrid has submitted that Availability certification of these assets for period from 31.10.2019 upto till date may be done so that POWERGRID can claim O&M charges for these assets.

14.2. NRLDC representative informed that form April 2022 onwards they have started verifying the data of these assets.

14.3. NRPC representative mentioned that outage data for these assets for past months may be submitted by POWERGRID to NRLDC and thereafter, based on the verified data, separate availability certification can be done by NRPC Sectt.

**15. Issue of Deemed Availability Certification of shutdown availed by POWERGRID for shifting of transmission lines for NHAI Projects**

15.1. NRPC representative presented the matter to the forum and communicated that POWERGRID has requested for Issue of Deemed Availability Certification of shutdown availed by POWERGRID for shifting of transmission lines for NHAI Projects.

15.2. NRPC representative requested beneficiaries to confirm whether they were affected or faced any transmission constraint due to outages (for SI. No. 1, 2, 3 and 4 of the list in annexure A.VIII of agenda) during shifting/diversion works of NHAI.

15.3. No observation was recorded by beneficiaries for outages at SI. No. 1, 2, 3 and 4 of the list in annexure A.VIII of agenda. In the absence of any

comment, it was decided that the above mentioned line outages for facilitating the NHAI works may be treated as deemed available.

**16. PTCC clearance of existing transmission lines after modification / route diversion on request of other government agencies. (Agenda by NR1-Powergrid)**

16.1. OCC agreed that in line with clause 2.0 of advisory dated 06.05.2022 issued by CEA (copy enclosed as Annexure-A.IX of agenda) that PTCC clearance for existing transmission line is not required for increase in tower height, provided that other factors like course of transmission line and nature of power flow remain unaltered, however in case there is change in course of transmission line or change in nature of power flow, such cases may be forwarded to CEA for examination and issuing suitable advisory on requirement of fresh PTCC clearance may be issued by CEA.

**17. Consideration of outage of transmission lines due to forest / bush fire as deemed available. (Agenda by NR1-Powergrid)**

17.1. NRPC representative presented the matter to the forum and communicated that POWERGRID has requested for consideration of outage of transmission lines due to forest / bush fire as deemed available.

17.2. OCC forum was of view that after verifying of outage data for these transmission line by NRLDC decision on the applicability of deemed availability may be taken by MS, NRPC as per Tariff regulations.

**18. Proposed SPS scheme at Obra TPS (Table Agenda by UPSLDC)**

18.1. NRPC representative intimated that UPSLDC vide letter dated 17.05.2022 (copy attached as **Annexure-A.IV**) has submitted the logic of proposed SPS scheme at Obra TPS.

18.2. UPSLDC representative explained to the forum the proposed SPS scheme at Obra TPS.

18.3. NRLDC representative mentioned that they will study the abovesaid SPS logic and thereby submit its observation.

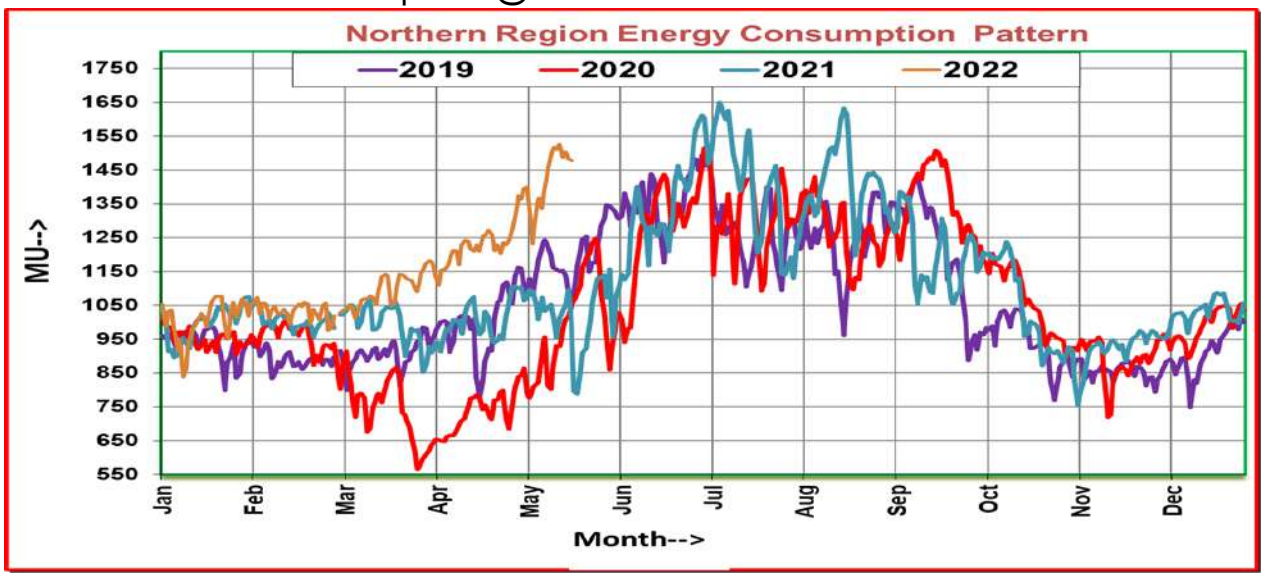
**खण्ड-ख: उ.क्षे.भा.प्रे.के. Part-B: NRLDC**

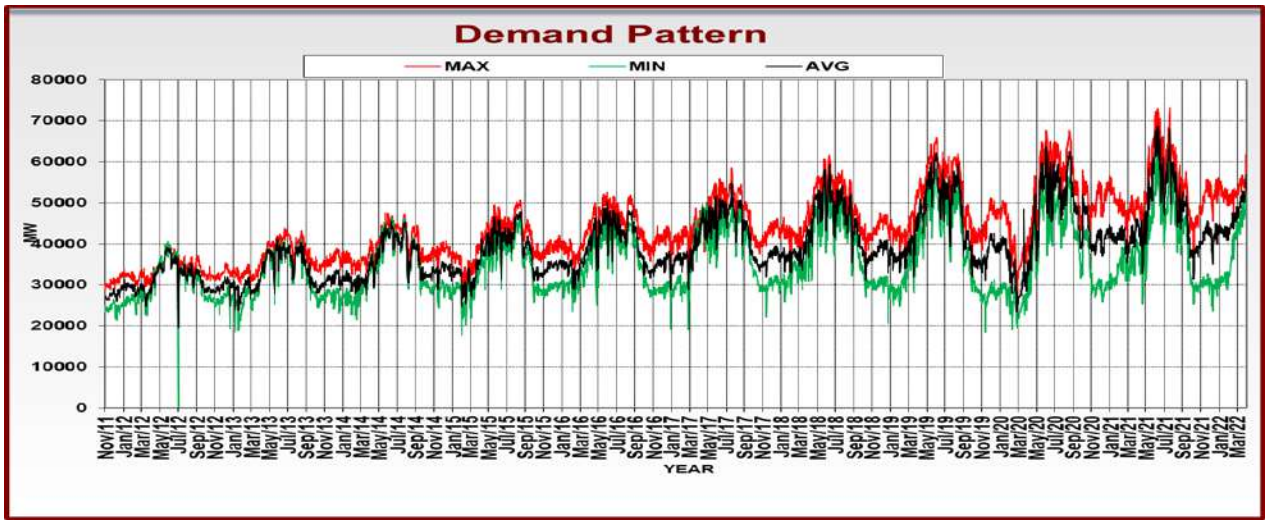
**19. NR Grid Highlights for April 2022**

NRLDC representative presented the grid highlights for the month of Apr 2022:

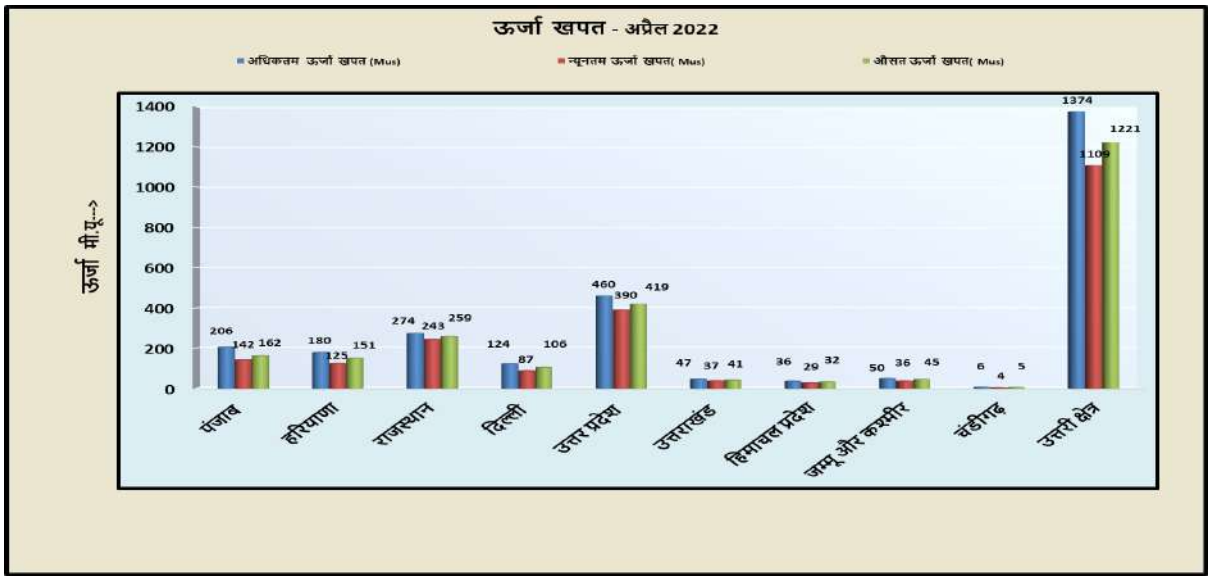
- Maximum energy consumption of Northern Region was 1373.87 Mus on 30th April'22 and it was 24.08 % higher than April' 2021 (1107.24 Mus 29th April'21)
- Average energy consumption per day of Northern Region was 1220.52 Mus and it was 22.23 % higher than April'21 (998.52 Mus per day)

- Maximum Demand met of Northern Region was 62217 MW on 30th April'22 @12:00 hours (based on data submitted by Constituents) as compared to 51852 MW on 13th April'21 @20:00 hours




Northern Region all time high value of **107.91 Mus solar generation was** recorded on 29 April'22

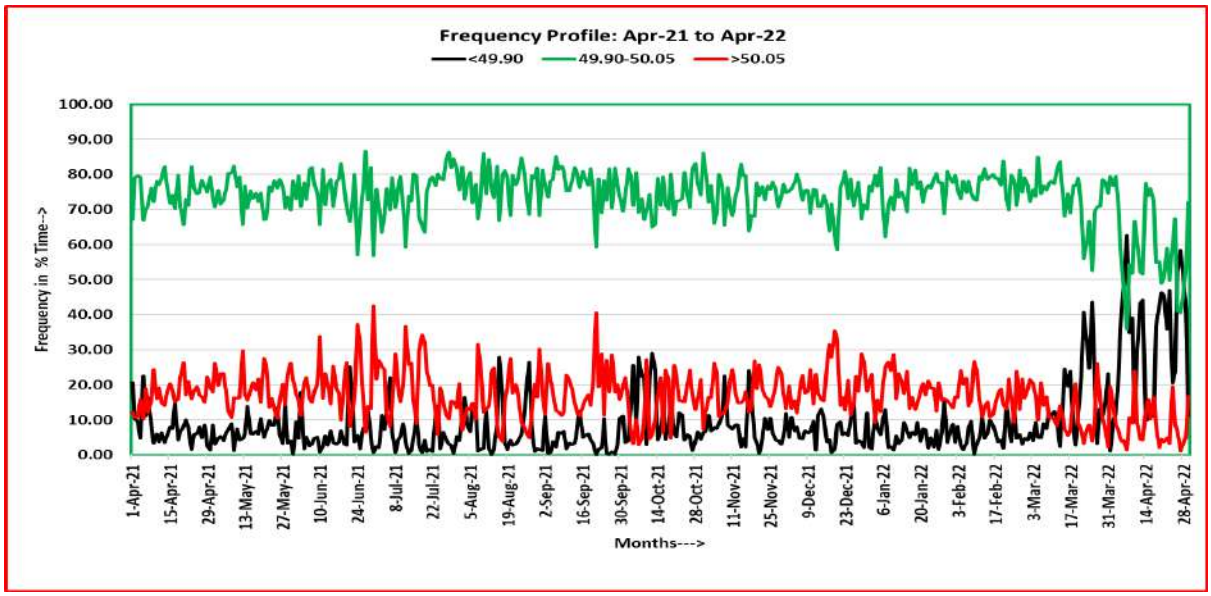



- Comparison of Average Energy Consumption (MUs/Day) of NR States for the April'21 vs April '22

| □□□□□□□/□□□□□ | □□□□□□- 2021 | □□□□□□-2022 | % □□□□ |
|---|---|---|---|
| □□□□□□ | 3.51 | 4.888 | 39.13 |
| □□□□□□ | 74.33 | 105.697 | 42.21 |
| □□□□□□ □□□□□□ | 28.13 | 32.148 | 14.30 |
| □□□□□□□ | 128.74 | 151.297 | 17.52 |
| □□□□□ □□ □□□□□□ | 52.41 | 44.880 | -14.37 |
| □□□□□ | 130.45 | 162.424 | 24.51 |
| □□□□□□□□ | 213.73 | 258.943 | 21.16 |
| □□□□□□□□□ | 36.93 | 41.204 | 11.59 |
| □□□□□ □□□□□□ | 337.41 | 419.042 | 24.20 |
| □□□□□□ □□□□□□□ | **998.52** | **1220.523** | **22.23** |

**Frequency Data Comparison**

| Month | Avg. Freq. (Hz) | Max. Freq. (Hz) | Min. Freq. (Hz) | <49.90 (% time) | 49.90 – 50.05 (% time) | >50.05 (% time) |
|---|---|---|---|---|---|---|
| **April'22** | 49.93 | 50.26 | 49.43 | 32.00 | 59.30 | 8.80 |
| **April'21** | 50.00 | 50.30 | 49.69 | 7.90 | 74.90 | 17.10 |




***In the meeting, it was discussed that in Apr'22, frequency remained within IEGC band for only 59.30 % of the time only which is very poor frequency profile. Although measures were taken by all utilities to keep frequency within the band, the same were inadequate. During this period, it was tried that there are minimal planned and forced outages of generating units. Same was also recommended for upcoming months due to high demand.***

***Large generation outage or any other contingency event, could result in further drop in frequency and therefore, overdrawals below 49.90 Hz must be controlled quickly in order to keep system secure. All utilities were requested to follow all the measures described in subsequent agenda points.***

***Meeting was also called by Chairperson, CEA on 04.05.202 to discuss the measures required to overcome the issues faced leading to low frequency operation of the grid. In the meeting, it was discussed that maximum demand of NR is expected to reach 77-78GW, all states were advised to practice better load generation balancing and ensure that they do not contribute in low frequency operation of the grid.***

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

1. Managing the demand portfolio and making prearrangements for procurement of power and ensuring portfolio balancing through STOA/RTM market segments
2. More units shall be kept on bar in order to meet the increased demand safely as well as maintaining reserves
3. Keeping sufficient coal stock and maintaining adequate reserves.
4. Restricting deviations from schedule and ensuring no under injection by the generators from schedule.
5. Advance action is required for bringing the units on bar to avoid situation such as encountered in April 2022.
6. Ensure that ADMS is in service and expedite its implementation if not commissioned.

7. Ensure healthiness and availability of AUFLS and df/dt load shedding.
8. In case of inadequate margins in intrastate generators measures for emergency load regulation measures may be taken in interest of grid security.
9. Pursue generators to expedite revival of thermal units under forced outage wherever feasible.

***All members agreed to take actions to improve the frequency profile of the grid.***

## 20. List of radial feeders for physical regulation

In view of continuous overdrawl by NR utilities, radial feeders are being opened as per NRLDC's instruction in real-time operation. Utilities were once again requested to update list of radial feeders which can be opened on the directions of NRLDC to regulate the demand. List of such radial feeders has been provided by respective utilities and is part of 'Operating Procedure of Northern Region'. The same is being discussed number of times in OCC as well as NRPC meetings. The issue was also discussed in 193 and 194 OCC meeting.

Following are the attributes for such feeders:

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

The opening of feeders is generally an extreme step which shall be required in case of threat to grid security and non adherence to RLDC instructions to manage overdrawl by SLDCs/ DISCOMs.

***It was agreed that every utility needs to take actions to support RLDC by following their instructions including opening of feeders.***

A meeting was organized by NRLDC on 06.05.2022 with participation from all SLDCs to review the list of feeders for physical regulation after most of the states had not submitted their feedback. Following is the updated status as per discussions held in the meeting.

| **List of feeders for physical regulation** | | | | |
|---|---|---|---|---|
| **UP** | | | | |
| S No | Name of Feeder | Affected area | Approx Load relief (MW) | Remarks |
| 1 | 220kV Meerut-Gajraula | Gajraula | 100 | Radial |
| 2 | 220kV Baghpat(PG)-Baghpat D/C | Baghpat | 60 | Radial |

| | | | | |
|---|---|---|---|---|
| 3 | 220kV Allahabad(PG)-Jhusi | Jhusi | 200 | Radial |
| 4 | 220kV Sohawal(PG)-Barabanki D/C | Barabanki | 120 | Not Radial |
| 5 | 220kV Mainpuri(PG)-Neemkarori D/C | Farukkhabad | 120 | Radial |
| 6 | 220kV Gorakhpur(PG)-Gola D/C | Gorakhpur | 80 | Radial |
| 7 | 132kV Ballia(PG)-Bansdeeh | Ballia | 15 | Radial |
| 8 | 132kV Ballia(PG)-Sikandarpur | Ballia | 30 | Radial |
| 50 no.s 132kV feeders can also be opened from SLDC and testing was also carried out few days back at SLDC level | | | | |
| **Punjab** | | | | |
| SNo | Name of Feeder | Affected area | Approx Load relief (MW) | Remarks |
| 1 | 132kV Jamalpur-Ghulal D/C | Ghulal | 91 | High loading during paddy |
| 2 | 66kV Jamalpur-Chandigarh Road | Chandigarh Road | 37 | To be preferred |
| 3 | 66kV Jamalpur-Sherpur | Ludhiana | 13 | - |
| 4 | 220/132kV Sangrur ICT 1,2, 3 | Shamsabad | 166 | High loading during paddy |
| 5 | 220kV Amritsar-Naraingarh D/C | Amritsar adjoining area | 100 | To be preferred |
| 6 | 220kV Patiala-Nabha D/C | Nabha | 190 | To be opened after discussion with SLDC |
| 7 | 220kV Jalandhar-Kanjli D/C | Kapurthala | 64 | To be preferred |
| 120 no.s 66kV feeders may be tripped from SLDC control room to control overdrawl (usually when freq below 49.8Hz) | | | | |
| **Haryana** | | | | |
| SNo | Name of Feeder | Affected area | Approx Load relief (MW) | Remarks |
| 1 | Feeders in schedule A | Panipat, Hisar, Jagadhari, Ballabgarh, Kurukshetra | 300 | High loading during paddy |
| 2 | Feeders in schedule B | | 225 | High loading during paddy |
| 3 | 132kV Narela-Kundli | Rai-Sonepat | 55 | Radial |

| | | | | |
|---|---|---|---|---|
| 4 | 66kV Dhulkote-Babyal, 66kV Dhulkote-Ambala City 1 & 2 | Ambala City | 40 | |
| 5 | 66kV Samaypur-Globe Steel 1 & 2 | Ballabgarh | 40 | Fed from 220kV A-5 Faridabad also |
| 6 | 66kV Samaypur-A-5 Faridabad 1 & 2 | Faridabad | 55 | Fed from 220kV A-5 Faridabad also |
| 7 | 66kV Samaypur-Sohna 1 & 2 | Sohna | 25 | Fed from Badshahpur and Tandu also |
| 220/132kV, 220/66 kV ICTs at BBMB stations such Hissar, Ch. Dadri, Kurukshetra, Jagadri. Dhulkote, can be opened. However, many 132kV, 66 kV and below feeder are covered under Schedule A & B | | | | |
| As informed by SLDC on 06.05.2022, not many 132kV radial feeders are available for opening of physical regulation. SLDC Haryana representative stated that they shall study and share revised list for physical feeder opening. Moreover, details of some of the feeders tested remotely from Haryana SLDC would also be shared. | | | | |

**Rajasthan**

| S. No. | Transmission line / Transformers to be opened | Power supply interruption | Approx load relief (MW) | Remark |
|---|---|---|---|---|
| 1 | 220kV Anta-Lalsot | Lalsot | 130 | The load of 220 kV GSS Lalsot is normally fed from Anta radially. However If ring of 220kV Anta-Lalsot-Dausa is closed then SLDC will open 220 kV Dausa – Lalsot line immediately after physical regulation message received from NRLDC. |
| 2 | 220 kV Bhinmal (PG) – Sayla Ckt-I & II | Sayla | 40 | However 220 kV GSS Sayla is also fed from 220 kV GSS Jalore. SLDC will open 220 kV Sayla – Jalore line immediately after physical regulation message received from NRLDC. |
| 3 | 220 kV Bassi(PG) - Bagru line | Bagru | 80 | However 220 kV GSS Bagru is also fed from 220 kV GSS Phulera. SLDC will open 220 kV Bagru – Phulera line immediately after physical regulation message received from |

| | | | | |
|---|---|---|---|---|
| | | | | NRLDC. |
| 4 | 220kV Bhiwadi(PG)-Khushkera<br>220kV Neemrana(PG)-Khushkera | Khushkhera & Kishangarh Bas | 170 | Limited alternate supply may be available. 220kV Alwar-K.G.Bas - Khushkhera line may get overloaded. |
| 5 | 220/132 kV, 160 MVA Transformer at 220kV GSS Behror | Behror | 80 | SLDC will open 220/132kV transformer of 220kV GSS Behror immediately after physical regulation message received from NRLDC. |
| **J&K** | | | | |
| S No | Name of Feeder | Affected area | Approx Load relief (MW) | Remarks |
| 1 | 220kV Kishenpur-Baran D/C | Baran | 200 | Radial feeder |
| 2 | 220kV New Wampoh-Mirbazar | Mirbazar | 200 | Radial feeder |
| 3 | 132kV Gladni-Kalakote S/C | Jammu | 80 | Priority 1 |
| 4 | Kashmir Bemina | Kashmir | 50 | |
| 5 | 132kV Barn-KalakoteD/C | Jammu | 80 | Priority 2 |
| 6 | 132kV Zainakote - Pattan D/C | Kashmir | 70 | |
| 220kV Samba-Hiranagar may not be opened as it also supplies to Railways | | | | |
| **Uttarakhand** | | | | |
| S No | Name of Feeder | Affected area | Approx Load relief (MW) | Remarks |
| 1 | 132kV Pithoragarh(PG)-Pithoragarh | Pithoragarh | 50 | Radial feeder |
| 2 | 220kV Sitarganj-Eldeco | Eldeco | 40-60 | Industrial load (only in case of extreme situations) |
| No control available from SLDC control room for physical regulation. It was discussed that such feeders may be identified which are fed from two resources and will provide relief. Compiled list of such feeders after discussion at state level needs to be shared with NRLDC at the earliest. In case it is difficult to identify such feeders, contingency plan needs to be developed at SLDC level and shared with NRLDC. | | | | |

| Himachal Pradesh | | | | |
|---|---|---|---|---|
| S No | Name of Feeder | Affected area | Approx Load relief (MW) | Remarks |
| 1 | 66kV Bhakra-Rakkar | Rakkar/ Una | 10-18 | Area being fed from 66kV Rakkar (Una) |
| 2 | 66kV Pong-Sansarpur | Sansarpur | 2-5 | Radial feeder |
| 3 | 132kV Dehar-Kangoo | Kunihar/Shimla | 80-140 | Priority 1. 400/220kV Dehar ICT may overload |
| 4 | 220kV Dehar-Kangoo | | | |
| 5 | 220kV Nallagarh-Upernangal D/C | Baddi/ Nallagarh | 180-315 | Industrial load (only in case of extreme situations) |
| 6 | 220kV Khodri-Majri D/C | Kala Amb/ Paonta Sahib/ Nahan | 80-190 | Limited supply may be available from Kunihar. Many essential loads, Oxygen plants, administrative buildings |
| 7 | 132kV Kulhal-Giri | | | |
| 8 | 66kV Parwanoo-Pinjore | Parwanoo | - | Generally kept open |
| 9 | 33kV Ganguwal-Bilaspur | Bilaspur | 6-8 | - |
| **Delhi** | | | | |
| S No | Name of Feeder | Affected area | Approx Load relief (MW) | Remarks |
| 1 | 220kV Mundka-Peeragarhi D/C | Peeragarhi | 100-150 | Radial feeder |
| 2 | 220kV BTPS-Okhla D/C | Okhla | 200-350 | Radial feeder |
| 3 | 33kV Delhi ckts 1,2,3,4 feeders from Rohtak road (BBMB) | Rohtak Road | 20-30 | Radial feeder |
| 4 | 220kV MaharaniBagh-Lodhi Road D/C | Lodi Road | 200-300 | May not be opened as VIP area |
| 5 | 220kV Maharanibagh-Masjid Moth D/C | Masjid Moth | | Radial feeder |
| | | | | |

***Uttarakhand representatives stated that they shall share updated list of radial feeders before next OCC meeting.***

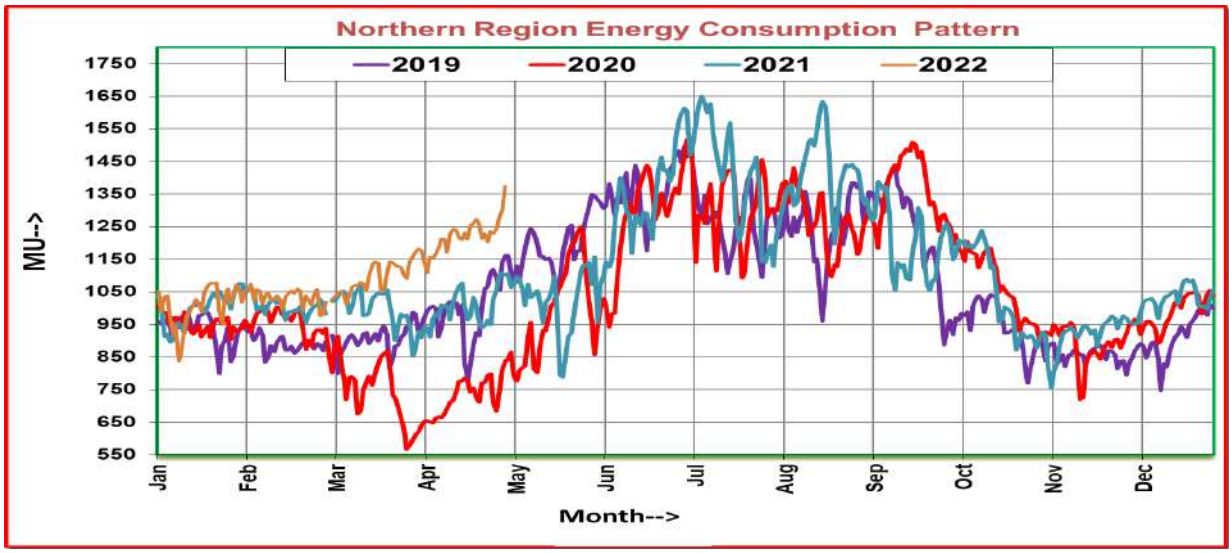
***Haryana representative stated that the list of radial feeders has been sent for approval to management and would be shared after approval. These feeders***

***are 220kV Kaithal-Neemwala D/C and 220kV Sec 72 Gurgaon- Sec 33 D/C. These would be in addition to Schedule A & B feeders already identified.***

***NRLDC representative urged Haryana and Uttarakhand representatives to share the updated list at the earliest. NRLDC representative also stated that since some of the feeders are being opened manually by UP and Punjab and it would be better if the same is automated.***

## 21. Summer preparedness 2022

It was discussed that, due to extreme weather conditions, high demand is observed during summer/monsoon months in Northern region. Along with high demand, high loadings of lines and transformers and low voltages especially at distribution level are big challenge to safe and secure grid operation. ***Moreover, as the solar generation starts to decrease after 2 pm onwards, sufficient ramping in other generation needs to be provided at intrastate as well as interstate level.***

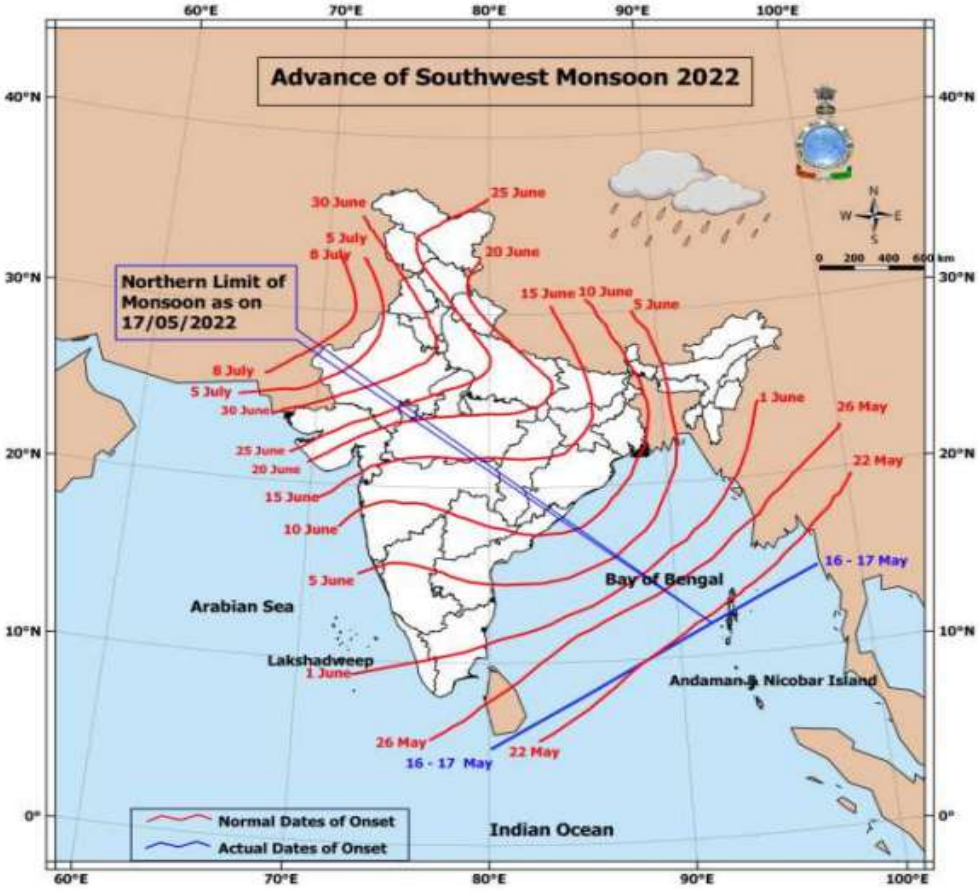



As per latest LGB issued by NRPC, attached as Annexure-B.I of agenda, anticipated demand and energy consumption data it is clear that the upcoming months would be really challenging for Northern region. Some of the states such as Punjab, Haryana, Delhi, UP and Chandigarh may face issues in meeting the demand in safe manner. To overcome the commonly encountered challenges during summer months and ensuring smooth grid operation, following points were discussed in the meeting(also discussed in 193 & 194 OCC):

- During summer, in anticipation of increasing demand, adequate reserves need to be maintained.
- All ISGS and state thermal generators need to back down upto 55% of their capacity, if required for scheduling purposes.
- Apart from portfolio management based on proper forecast, re-starting of units under reserve shutdown at state as well as Inter-state level through appropriate transactions is required.
- Update & sharing coal stock position of thermal plants at least a week in advance as agreed earlier in TCC/NRPC meeting.
- In view of high/increasing demand & transmission constraints (if any) in importing the power or in case of any contingency in the system, states are

advised to maximize their internal generation to avoid low frequency/low voltage operation or other related issues

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



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

**22. Reactive power support in the grid**

**Tap position change**

NRLDC representative stated that as discussed in last 2 OCC meetings, ICT Tap Optimization at 400kV & above to be carried out by NRLDC. Same exercise needs to be carried out by SLDCs at 220kV & below levels. Based on voltage data of April 2022, it was proposed to carry out tap change exercise at following 400/220kV nodes:

**Decrease by 2 Steps**
POWERGRID: Gorakhpur, Hamirpur, Kanpur, Kaithal, Patiala, Roorkee
BBMB: Panipat
UPPTCL: Sarnath (Varanasi)

Scatter plots for these stations are attached as Annexure-B.III of agenda**.**

**Panipat BBMB representative stated that the two ICTs available are having different ratings and also one has taps on LV side and one on HV side and different number of taps, therefore it would be difficult to match voltage ratio at other tap positions.**
***OCC agreed for tap change at above nodes except Panipat(BBMB). SLDCs were also requested to provide the tap change exercise carried out by them or proposed to be carried out shortly.***

***All interstate and intrastate generators were asked to provide support by providing required dynamic reactive power support in the grid.***

***POWERGRID was also asked to continuously check STATCOM and SVC performance and review settings in coordination with NRLDC so as to ensure maximum static and dynamic support from the grid. SVC performance of Ludhiana SVC suggests need for change in settings. It was agreed that same would be discussed in separate meeting with POWERGRID.***

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

As discussed in 189$^{th}$ OCC meeting, recently, Secretary, Ministry of Power, emphasized the importance of ensuring accuracy of the hourly load shedding (MW) and energy not met (MU) figures being received from various SLDCs on daily basis in respect of their own states, and classifying them under different heads like low availability, transmission constraints, financial constraints, planned maintenance of transmission / distribution system within state, etc.

Although SLDCs are uploading the hourly load shedding figures of the previous day on the web-based reporting software of NRLDC the next day, but reason for the

shedding or unserved demand at any hour is not segregated into the possible different categories.

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

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

In 194 OCC meeting, Delhi SLDC representative again highlighted that there is delay in receipt of information from DISCOMs. NRLDC and NRPC representatives expressed concern and stated that same status is being given since last 3-4 meetings and no improvement is seen in this regard. Separate meetings need to be organised with DISCOMs and NRLDC and NRPC representatives would also join. Delhi SLDC representative agreed for the same.

In 195 OCC meeting, it was discussed that Delhi has started sharing this data from May 2022 onwards. However, it is seen that some of the U/Ts such as J&K and Chandigarh are not sharing data.

***OCC noted the information and asked J&K and Chandigarh also to provide the required data as discussed in last few meetings.***

## 24. TTC/ATC of state control areas for summer 2022

In the meeting, it was discussed that 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.

SLDCs were requested to go through the tentative ATC/TTC limits for June 2022 (Annexure-B.IV.a of agenda) and provide comments. If no comments are received, these limits will be assumed confirmed and uploaded on NLDC website. SLDCs were also requested to upload these limits in their respective websites. 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 was also attached as Annexure-B.IV.b of agenda and discussed in the meeting.

**Punjab**

In 194 OCC meeting, it was discussed that all these elements are expected before paddy 2022. Punjab SLDC has shared their ATC/TTC assessment with NRLDC on 30.03.2022. NRLDC vide their letter dated 25.04.2022 has agreed to the enhanced limits subject to full internal generation of Punjab and the commissioning of mentioned transmission elements:

In the meeting NRLDC representative stated that in the month of May 2022, when import by Punjab state control area was more than 6500MW, severe N-1 non-compliance was observed at 400/220kV Rajpura ICTs whereas loading was close to N-1 contingency limit at 400/220kV Nakodar ICTs. Punjab has implemented SPS at both these locations, but it is necessary to complete the pending transmission elements to ensure N-1 compliance at these stations.

N-1 contingency of 500 MVA ICT at Ludhiana, Patran, Malerkotla, Moga, Patiala and N-1 contingency of 315 MVA ICT at Nakodar and Nallagarh will critically load other ICTs and thus, these contingencies are the limiting constraints for import capability of Punjab. Punjab SLDC should ensure loading of these 400/220kV ICTs below contingency N-1 limits.

Increased generation at 220 kV level (Ropar, Lehramohabbat, Goindwal) will help in meeting the high demand, expected at the time of paddy season as well as improvement in reliability due to increased voltage support. Thus, full generation at 220kV generating stations such as Goindwal, Ropar and Lehramohabbat is recommended to maintain this ATC/TTC limit for Punjab.

Although simulation studies suggest no major low voltage issues, Punjab SLDC needs to monitor continuously the voltage profile, load power factor and availability of shunt compensation.

***Punjab SLDC agreed for the above measures. Punjab SLDC was asked to take up the matter for selling power in Real Time Market in case of load crash events on priority.***

**UP**

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

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

Subsequently, UP SLDC vide mail dated 16.05.2022 has shared their revised assessments as follows:

| Intra–State Generation(w/o Solar and Co-Gen) | TTC | RM | ATC |
|---|---|---|---|
| 11000 | 15100 | 600 | 14500 |
| 12000 | 14500 | 600 | 13900 |
| 13000 | 14000 | 600 | 13400 |

Limiting

NRLDC representative stated that comments from NRLDC side have been mailed on 20.05.2022.

In the month of May 2022, when import of UP was in the range of 12000-12500MW, loadings close to N-1 limit were observed at 400/220kV Sarnath, Obra, Lucknow(PG), Sohawal and Allahabad(PG) ICTs. UP SLDC was asked to restrict loadings of these ICTs below their N-1 contingency limit.

NR import is rising in the ongoing summer season, capability of inter-regional HVDC is utilised. It has been observed that whenever HVDC Vindhyachal is made towards NR, the constraint in form of loading of 400 kV Anpara-Obra takes place. In the night hours around 2200 hours, the loading on 765 kV Vindhyachal-Varanasi is observed to be around 1700 MW/circuit. Under such conditions, operation of HVDC Vindhyachal towards NR is expected to relieve the loadings.

NRLDC/ NLDC is keeping HVDC towards WR even then high loading on 400 kV Anpara-Obra is being observed. Loading pattern was enclosed in agenda for reference.

UP representative stated that 765kV AnparaD- Unnao line would be revived shortly and thereafter this issue would not be faced afterwards. Moreover, it was discussed that if required 220kV lines from Obra may be opened if loading of 400kV Anpara-Obra is higher than safe limit if they are not able to ensure sufficient generation at Obra TPS.

**Rajasthan**

Rajasthan SLDC has proposed SPS at 400/220kV Ajmer, Merta and Chittorgarh (Annexure-B.III of 194 OCC agenda).

In 194 OCC meeting, NRLDC representative stated following were comments from NRLDC side on the proposal:

- Ajmer: Proposed SPS seems to be in order in general as per NRLDC.
- Merta: 220/132kV Merta ICTs not shown in diagram.
- Chittorgarh: Other 220kV line may also need to be added as sought relief may not be provided.

Rajasthan representative agreed to look into the comments from NRLDC side. Rajasthan was given in-principle approval for implementation of SPS at 400/220kV Ajmer, Merta and Chittorgarh, expedite implementation of SPS, and share revised ATC/TTC assessment of Rajasthan state control area.

In 195 OCC meeting, it was discussed that in the month of April-May 2022, severe N-1 non-compliance was observed at 400/220kV Ajmer, Chittorgarh, Merta, Bhinmal and Bikaner ICTs. Rajasthan SLDC representative was asked to provide the plan to ensure

loadings at these 400/220kV ICTs below their N-1 contingency limits. Rajasthan SLDC was also asked to expedite implementation of SPS as agreed in last OCC meeting.

**Delhi**

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

In 194 OCC meeting, it was informed that works for Mundka ICT are in place and ICT is expected before 30th April 2022. It was informed that SPS has been implemented at 400/220kV Mundka ICTs.

In 195 OCC meeting, DTL was asked to share ATC/TTC assessment and basecase with NRLDC/ NRPC at the earliest. Delhi SLDC representative informed that the ATC/TTC assessment was done and same is sent for approval by management. It was informed that constraints observed are 400/220kV Harsh Vihar and Mandola ICTs at ATC/TTC of 6800/7100MW. After approval, ATC/TTC figures would also be uploaded on Delhi SLDC website.

**Haryana**

In 194 OCC meeting, Haryana SLDC was asked to share the revised ATC/TTC limits for summer/monsoon 2022 along with anticipated generation scenario, basecase and reports with NRLDC at the earliest. Network arrangement for managing loading at Kurukshetra also needs to be shared. Haryana was also asked to expedite utilisation of underlying network at Bhiwani.

From the plot shown in Annexure of agenda, it can be seen that even at the import of nearly 7000MW, loading is above N-1 contingency limit at 400/220kV Deepalpur and near N-1 contingency limit at 400/220kV Panipat (BBMB) ICTs. Moreover, high loading of 220kV Sonepat-Mohana lines is also being observed in real-time.

In 195 OCC meeting, Haryana SLDC representative stated that they have implemented SPS at 400/220kV Deepalpur. For Kurukshetra, they shall take up the matter for implementing SPS with POWERGRID. During shutdown of Samalkha-Chhajpur line due to highway crossing works, additional loading had to be kept on 220kV Sonepat-Mohana, therefore higher loading was observed.

For N-1 compliance of 400/220kV Panipat ICTs, drawl of Delhi also needs to be restricted as both Haryana and Delhi are drawing power from Panipat substation. Delhi SLDC representative stated that the line is connected since previous years and the line flow is normal.

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.

HP and Uttarakhand have shared their ATC/TTC assessment for summer 2022.

**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 were once again requested to advise the concerned officers to evaluate their ATC/TTC limits in coordination with NRLDC and share latest assessment with NRLDC and NRPC after procurement of PSSe software.
As discussed in last several OCC meetings, all SLDCs need to furnish ATC/TTC details of their control area at respective SLDC websites. Now, it is being observed that most of the SLDCs except J&K and Delhi are uploading ATC/TTC limits on their websites.

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

It 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.

## 25. 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. Update on the status of these elements from last OCC meeting was requested by the forum (**Annexure-B.V of agenda**).

***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.***

***Following generating units had 3 or more forced outages from 20Apr-18May 2022:***

| Unit Name | Number of forced outages |
|---|---|
| Auraiya GPS Unit3 | 11 |
| Auraiya GPS Unit4 | 10 |
| Anta GPS Unit1 | 9 |
| Anta GPS Unit3 | 8 |

| | |
|---|---|
| Auraiya GPS Unit1 | 7 |
| Anta GPS Unit2 | 6 |
| Suratgarh TPS Unit3 | 6 |
| Dadri GPS Unit2 | 5 |
| Suratgarh TPS Unit6 | 5 |
| Dadri GPS Unit1 | 4 |
| Guru Gobind Singh TPS (Ropar) Unit5 | 4 |
| Auraiya GPS Unit2 | 3 |
| Guru Hargobind Singh TPS (Lehra Mohabbat) Unit1 | 3 |
| Harduaganj_Ext Unit1 | 3 |
| Suratgarh TPS Unit4 | 3 |

***Following information was shared by utilities:***

- ***RUNL representative informed that there was issue in ASC in Suratgarh unit-3 and the same is being attended. For other units also actions are being taken to avoid tripping of units.***
- ***Punjab SLDC representative stated that Ropar unit was out on number of occasions due to boiler tube leakage. Lehramohabbat unit-2 is under outage due to ESP breakdown and will take some time for revival.***

***Revival of following critical transmission elements were discussed in the meeting:***

| **Name of element** | **Latest status as discussed in meeting** |
|---|---|
| 400/220 kV 240 MVA ICT 3 at Moradabad(UP) | 30-Dec-22 |
| 765 KV ANPARA_D-UNNAO (UP) CKT-1 | 30.05.2022. LILO of the line at Obra C under processing |
| 400 KV Kadarpur (GPTL) - Bus 1 | 31.05.2022 |
| 220 KV Sohawal(PG)-Gonda(UP) (UP) Ckt-1 | 31.05.2022 |
| 220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt-1 | 31.05.2022 |
| 400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP) | Replacement with 500MVA new ICT . |
| 400/220 kV 315 MVA ICT 1 at bhilwara(rs) | 31.05.2022 |
| 400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP) | 30-Jun-22 |
| 400KV Bus 1 at Vishnuprayag(JP) | 30-Sep-22 |

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

In 176$^{th}$ OCC meeting, it was discussed that first time charging procedure is not being diligently followed by some entities. The documents are being submitted at the last minute and thereafter it is being urged to NRLDC to give the code for charging. In the meeting it was also requested that utilities should inform about elements expected for

first time charging in the next one month in advance in OCC meeting. This information would be helpful in carrying out studies, SPS requirement/modification etc in time.

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

***In line with the above decisions, 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**

***SLDCs were requested to provide update on the agenda point.***

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

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

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

***NRLDC representative stated that they have circulated draft list on 23.05.2022 with all constituents. Utilities were requested to provide update in 1-2 days.***

***Utilities were requested to go through the operating procedure document available @ https://nrldc.in/download/operation-procedure-of-northern-region-2021-22/?wpdmdl=9306 and provide comments.***

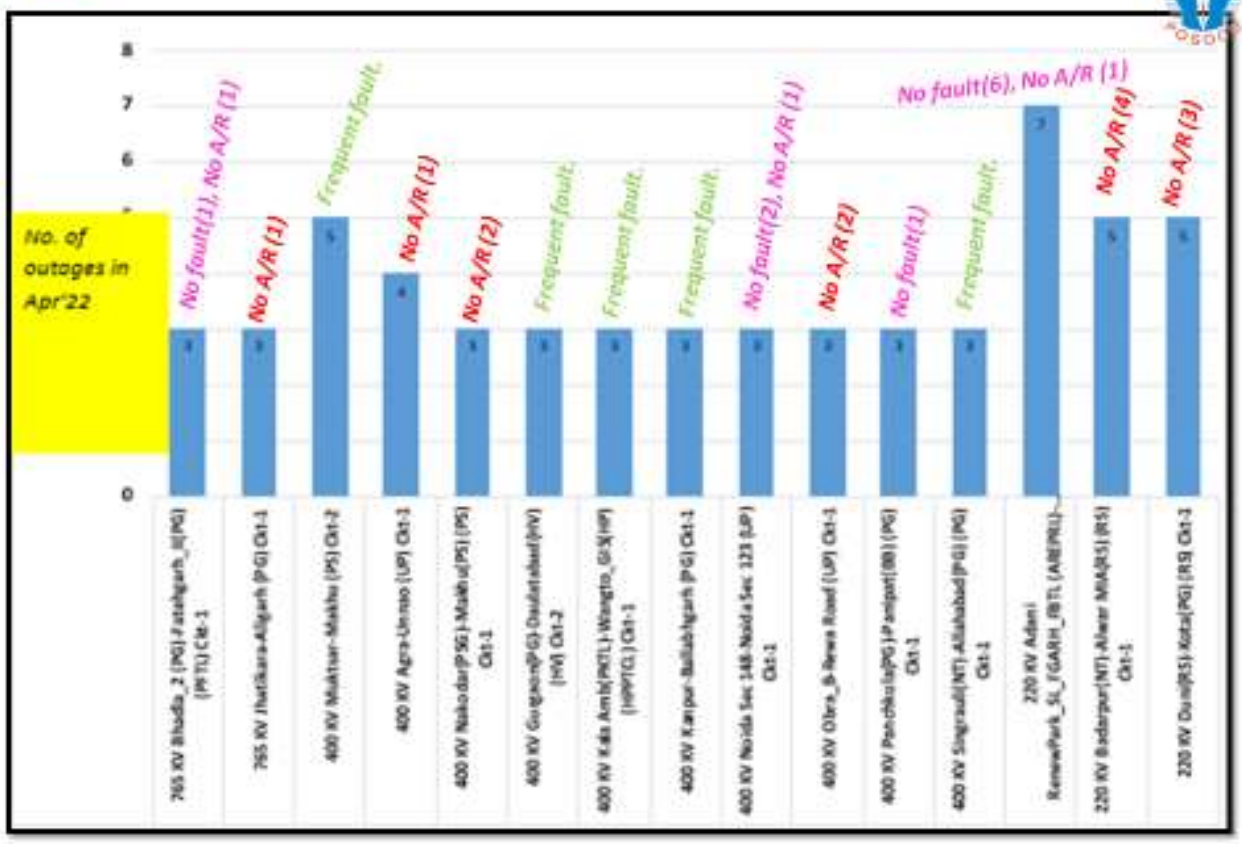
**26. Frequent forced outages of transmission elements in the month of Apr'22:**

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

| S. NO. | Element Name | No. of forced outages | Utility/SLDC |
|---|---|---|---|
| 1 | 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 | 3 | POWERGRID |
| 2 | 765 KV Jhatikara-Aligarh (PG) Ckt-1 | 3 | POWERGRID |
| 3 | 400 KV Muktsar-Makhu (PS) Ckt-2 | 5 | Punjab |
| 4 | 400 KV Agra-Unnao (UP) Ckt-1 | 4 | UP |
| 5 | 400 KV Nakodar(PSG)-Makhu(PS) (PS) Ckt-1 | 3 | Punjab |

| | | | |
|---|---|---|---|
| 6 | 400 KV Gurgaon(PG)-Daulatabad(HV) (HV) Ckt-2 | 3 | POWERGRID/Haryana |
| 7 | 400 KV Kala Amb(PKTL)-Wangto_GIS(HP) (HPPTCL) Ckt-1 | 3 | PKTL/HP |
| 8 | 400 KV Kanpur-Ballabhgarh (PG) Ckt-1 | 3 | POWERGRID |
| 9 | 400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-1 | 3 | UP |
| 10 | 400 KV Obra_B-Rewa Road (UP) Ckt-1 | 3 | UP |
| 11 | 400 KV Panchkula(PG)-Panipat(BB) (PG) Ckt-1 | 3 | POWERGRID/BBMB |
| 12 | 400 KV Singrauli(NT)-Allahabad(PG) (PG) Ckt-1 | 3 | POWERGRID/NTPC |
| 13 | 220 KV Adani RenewPark_SL_FGARH_FBTL (AREPRL)-AHEJ4L PSS 4 HB_FGRAH_FBTL (AHEJ4L) (AREPRL) Ckt-1 | 7 | AREPRL/AHEJ4L |
| 14 | 220 KV Badarpur(NT)-Alwar MIA(RS) (RS) Ckt-1 | 5 | Rajasthan/NTPC |
| 15 | 220 KV Duni(RS)-Kota(PG) (RS) Ckt-1 | 5 | Rajasthan/POWERGRID |

## B.22 Frequent Forced outages: April'22




The complete details are attached at Annexure-B.VI of agenda.

**Discussion during the meeting:**

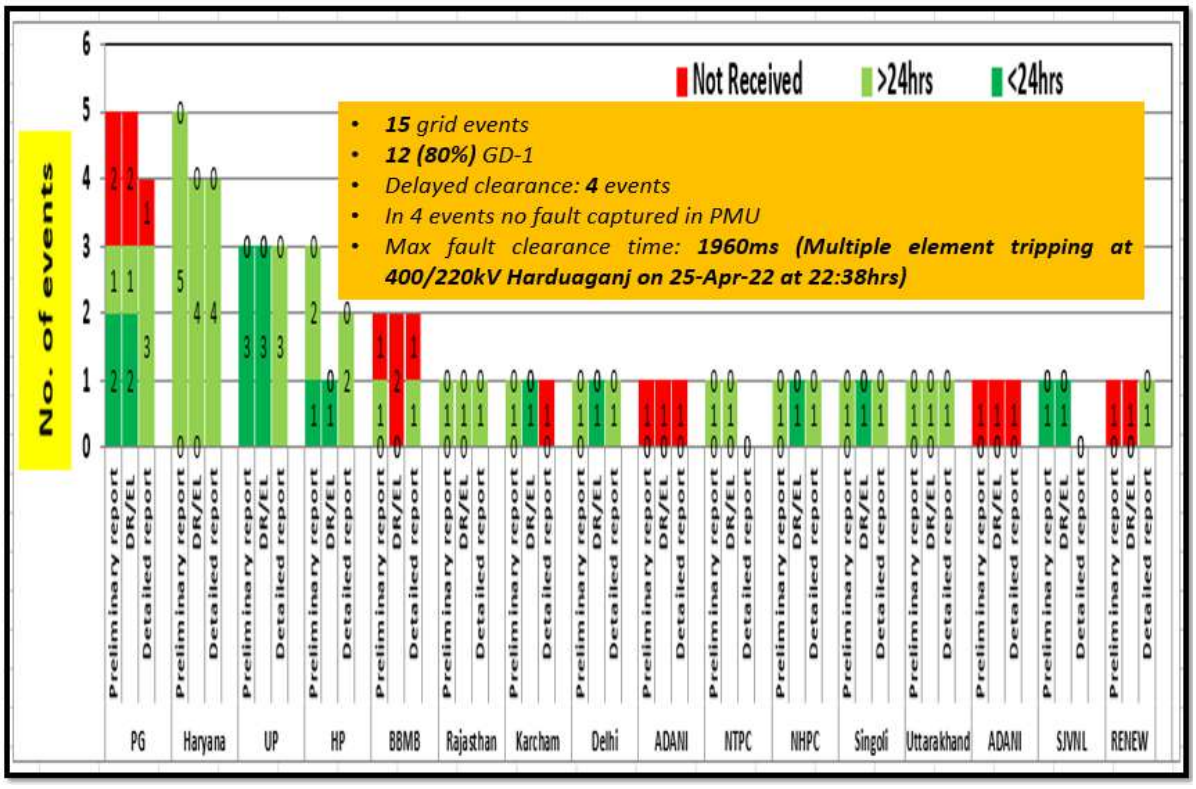
- **400 KV Agra-Unnao (UP) Ckt-1**: *UPPTCL representative informed that in the tripping fault was in 400kV Unnao - Bareilly line. 400kV Unnao - Bareilly ckt-1 successfully auto reclosed. Same fault was sensed by 400kV Agra and line tripped at 400kV Agra end while no intertripping carrier was sent by 400kV Unnao end. 400kV Agra end had informed that they are taking up matter and analysing the tripping in detail. He said that other three tripping occurred due to persistent nature of line fault.*
- ***NRLDC representative emphasized that A/R (auto reclosure) 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 endeavor to keep auto reclosure 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***

**27. Multiple element tripping events in Northern region in the month of Apr'22:**

A total of **15** grid events occurred in the month of Apr'22 of which **12** 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.VII of agenda.**

**B. 23 Grid Events** (*in April'22*): Details Received Status

***Note:*** *Details received by 05-May-22 are considered*




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 1960ms in the event of multiple element tripping at 400/220kV Harduaganj on 25-Apr-22 at 22:38hrs. UP explained about the Harduganj tripping and cited non-availability of Bus-bar protection at 220 kV Harduaganj as the reason for delayed clearance.**

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **4** events out of **15** grid events occurred in the month. In 4 number of events, fault signature couldn't be captured from PMU data.

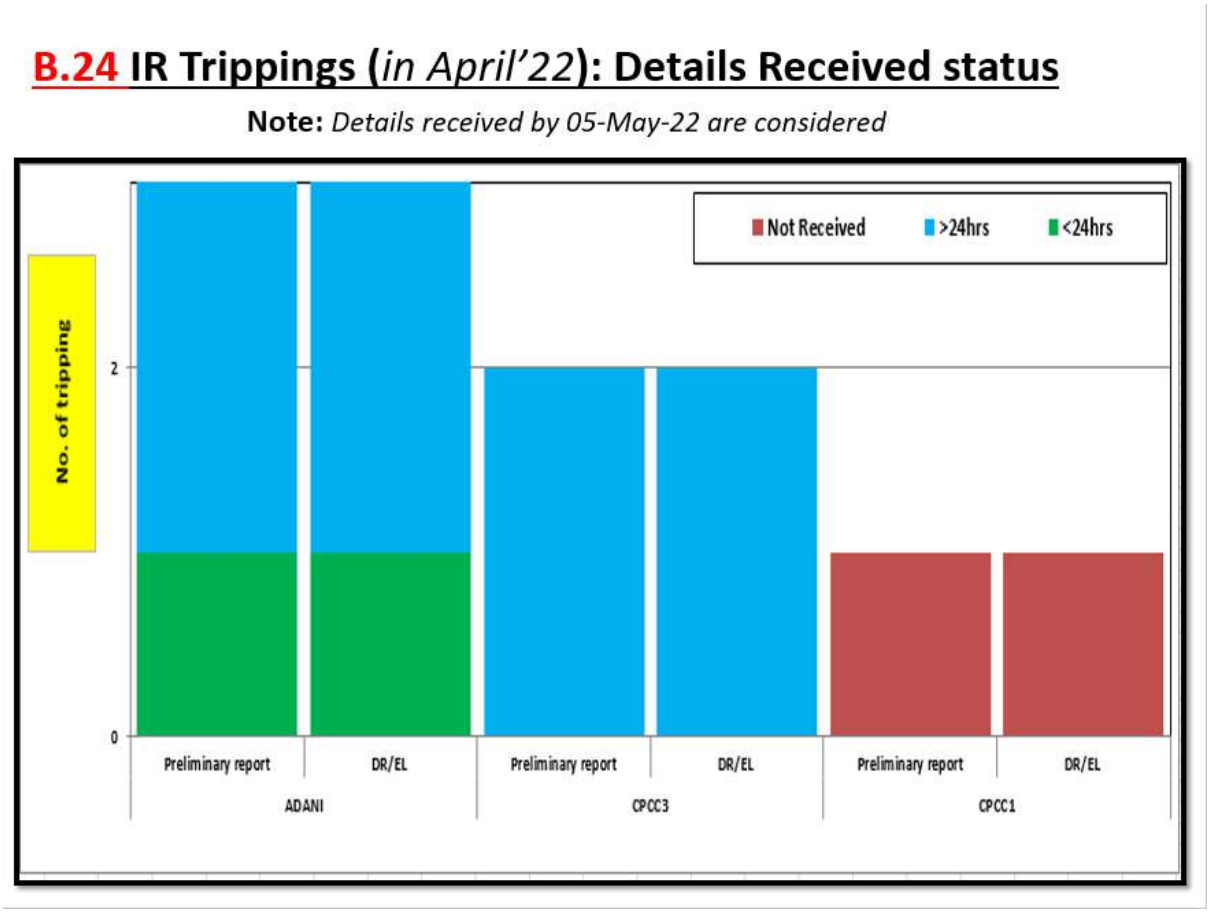
***NRLDC representative raised concern about poor status of report updation by POWERGRID, UP, Delhi, Adani and J&K on the tripping portal. He further stated that timely report submission is an important activity and all constituents are advised to take this on priority and upload the reports.***

***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.***

**28. Details of tripping of Inter-Regional lines from Northern Region for Apr'22:**

A total of 6 inter-regional lines tripping occurred in the month of Apr'22. The list is attached at **Annexure-B.VIII 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 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.***

**29. Status of submission of DR/EL and tripping report of utilities for the month of Apr'22.**

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

| S. No. | Utility | 1st Apr 2022 - 30th Apr 2022 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total No. of tripping | First Information Report (Not Received) | | Disturbance Recorder (Not Received) | Disturbance Recorder (NA) as informed by utility | Disturbance Recorder (Not Received) | Event Logger (Not Received) | Event Logger (NA) as informed by utility | Event Logger (Not Received) | Tripping Report (Not Received) | Tripping Report (NA) as informed by utility | Tripping Report (Not Received) |
| | | | Value | % | Value | | % | Value | | % | Value | | % |
| 1 | ACME | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 2 | AHEJ4L | 7 | 7 | 100 | 7 | 0 | 100 | 7 | 0 | 100 | 7 | 0 | 100 |
| 3 | ANTA-NT | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 4 | APL | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | APMPL | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 6 | AREPRL | 8 | 7 | 88 | 4 | 0 | 50 | 4 | 0 | 50 | 8 | 0 | 100 |
| 7 | AVAADA RJHN | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 8 | BAIRASUIL-NH | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | BBMB | 56 | 17 | 30 | 20 | 11 | 44 | 18 | 21 | 51 | 19 | 2 | 35 |
| 10 | CHAMERA-I-NH | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 |
| 11 | CLEANSOLAR_JODHPUR | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 12 | CPCC1 | 83 | 22 | 27 | 23 | 8 | 31 | 25 | 9 | 34 | 23 | 6 | 30 |
| 13 | CPCC2 | 52 | 4 | 8 | 4 | 5 | 9 | 4 | 4 | 8 | 22 | 0 | 42 |
| 14 | CPCC3 | 34 | 10 | 29 | 9 | 0 | 26 | 9 | 0 | 26 | 9 | 0 | 26 |
| 15 | DADRIGAS-NT | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 16 | DADRI-NT | 8 | 0 | 0 | 1 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | FARIDABAD-NT | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 18 | INDIGRID | 2 | 2 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 100 |
| 19 | JHAJJAR | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 20 | KARCHAM | 12 | 3 | 25 | 5 | 3 | 56 | 5 | 1 | 45 | 12 | 0 | 100 |
| 21 | KISHENGANGA-NH | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | KOTESHWAR | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | MAHINDRA | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 24 | NAPP | 3 | 1 | 33 | 1 | 0 | 33 | 1 | 0 | 33 | 1 | 0 | 33 |
| 25 | NJPC | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 100 |
| 26 | PKTSL | 2 | 2 | 100 | 2 | 0 | 100 | 2 | 0 | 100 | 1 | 0 | 50 |

| S. No. | Utility | 1st Apr 2022 - 30th Apr 2022 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Total No. of tripping | First Information Report (Not Received) | | Disturbance Recorder (Not Received) | Disturbance Recorder (NA) as informed by utility | Disturbance Recorder (Not Received) | Event Logger (Not Received) | Event Logger (NA) as informed by utility | Event Logger (Not Received) | Tripping Report (Not Received) | Tripping Report (NA) as informed by utility | Tripping Report (Not Received) |
| | | | Value | % | Value | | % | Value | | % | Value | | % |
| 27 | RAMPUR | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | RAPPA | 6 | 2 | 33 | 6 | 0 | 100 | 6 | 0 | 100 | 6 | 0 | 100 |
| 29 | RAPPB | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 100 |
| 30 | RAPPC | 2 | 2 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | SALAL-NH | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 32 | SEWA-2-NH | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33 | SINGOLI | 4 | 1 | 25 | 1 | 0 | 25 | 1 | 0 | 25 | 4 | 0 | 100 |
| 34 | SINGRAULI-NT | 5 | 5 | 100 | 5 | 0 | 100 | 5 | 0 | 100 | 5 | 0 | 100 |
| 35 | SLDC-DV | 29 | 0 | 0 | 10 | 3 | 38 | 10 | 3 | 38 | 10 | 0 | 34 |
| 36 | SLDC-HP | 16 | 0 | 0 | 0 | 12 | 0 | 0 | 12 | 0 | 0 | 0 | 0 |
| 37 | SLDC-HR | 40 | 26 | 65 | 29 | 1 | 74 | 28 | 0 | 70 | 26 | 0 | 65 |
| 38 | SLDC-JK | 7 | 1 | 14 | 7 | 0 | 100 | 7 | 0 | 100 | 7 | 0 | 100 |
| 39 | SLDC-PS | 29 | 1 | 3 | 4 | 1 | 14 | 4 | 0 | 14 | 7 | 0 | 24 |
| 40 | SLDC-RS | 72 | 0 | 0 | 35 | 0 | 49 | 35 | 0 | 49 | 36 | 0 | 50 |
| 41 | SLDC-UK | 14 | 4 | 29 | 6 | 0 | 43 | 9 | 5 | 100 | 5 | 0 | 36 |
| 42 | SLDC-UP | 114 | 20 | 18 | 27 | 12 | 26 | 28 | 4 | 25 | 24 | 1 | 21 |
| 43 | SORANG | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 100 |
| 44 | STERLITE | 7 | 2 | 29 | 1 | 0 | 14 | 1 | 0 | 14 | 2 | 1 | 33 |
| 45 | TANAKPUR-NH | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 46 | TANDA-NT | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 47 | TATAPOWER | 1 | 1 | 100 | 1 | 0 | 100 | 1 | 0 | 100 | 1 | 0 | 100 |
| 48 | UNCHAHAR-NT | 1 | 1 | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 49 | URI-I-NH | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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 CPCC3, Haryana & Uttarakhand on the tripping portal.***

***Haryana representative informed that they have taken the matter with STU and report updation status is expected to improve in future.***

***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.***

## 30. Frequency response characteristic:

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

Table:

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

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 20-Apr-22 | 15:47hrs | At 15:47 Hrs Dated 20th-April-2022, As reported, due to loss of evacuation paths at 400kV SEIL_P2, unit-1 and 2 of 660 MW capacity each at SEIL_P2 got tripped and resulted in Generation loss of 1270MW.<br>Same figure is considered for FRC Calculation. | 49.72 | 49.66 | -0.06 |
| 2 | 26-Apr-22 | 10:08hrs | At 10:08 Hrs/26.04.22, due to internal flashover on C-Bus R-Ph isolator rotary of 400KV HVDC-2 Bay, bus bar protection operated on 400 KV Bus 1 and Bus 2 at Padghe(MSETCL) causing black out of 400/220 KV Padghe(MSETCL). 400/220 Padghe(MSETCL) ICTs were feeding 1694MW of load at the time of tripping. The same considered as load loss for FRC computation. | 49.93 | 50.06 | 0.13 |
| 3 | 29-Apr-22 | 11:51hrs | At 11:51 Hrs Dated 29th-April-2022, As reported, 400kV Pavagada-BPS-1 tripped on LL fault and Line-2 is already under outage on fault. Due to this all the lines at Bellary Pooling station(BPS) tripped and resulted in the loss of evacuation lines for the YTPS station as 400kV Jagalur SS also went in to black out. Consequently generation loss of around 1536 MW occurred at 400kV YSTPS(1036 MW) and 400kV Jindal(500 MW) and same is considered in FRC Calculation. | 49.82 | 49.76 | -0.06 |

Status of  Data received till date:

| Status of Field Data received of FRC of Grid event occurred at SEIL_P2 (Southern Region) at 15:47 Hrs on 20.04.2022 | | | |
|---|---|---|---|
| Data Received from | | Data Not Received from | |
| Singrauli NTPC | Tehri HEP | Uttarakhand | Rihand NTPC |
| Kawai (Adani) | Nathpa Jhakri | Punjab | APCPL Jhajjar |
| BBMB | NHPC | Delhi | Koteshwar |
| Rajasthan | Rosa(Reliance) | Haryana | Rampur HEP |
| Tanda(NTPC) | Unchhahar(NTPC) | UP | Dadri NTPC |
| HP | | | AD Hydro HEP |
| | | | Others |
| | | | |

| Status of Field Data received of FRC of Grid event occurred at Padghe (MSETCL, Western Region) at 10:08 Hrs on 26.04.2022 | | | |
|---|---|---|---|
| Data Received from | | Data Not Received from | |
| Singrauli NTPC | Koteshwar HEP | Uttarakhand | Rihand NTPC |
| Kawai (Adani) | Dadri NTPC | Punjab | APCPL Jhajjar |
| Rosa Reliance | Rajasthan | Delhi | Unchahar TPS |
| NHPC | BBMB | Haryana | Nathpa Jhakri HEP |
| HP | | UP | Rampur HEP |
| | | | Others |
| | | | |
| | | | |

| Status of Field Data received of FRC of Grid event occurred at YSTPS (Southern Region) at 11:51 Hrs on 29.04.2022 | | | |
|---|---|---|---|
| **Data Received from** | | **Data Not Received from** | |
| Singrauli NTPC | Nathpa Jhakri | Uttarakhand | Rihand NTPC |
| AD hydro | NHPC | Punjab | APCPL Jhajjar |
| Koteshwar | Rosa(Reliance) | Delhi | Rampur HEP |
| Tanda NTPC | Dadri (NTPC) | Haryana | Others |
| HP | | UP | |
| | | Rajasthan | |
| | | | |
| | | | |

PFR as per NRLDC SCADA data and generators field data:

Primary Frequency Response by Generators during Grid Event at SEIL_P2 (Southern Region) at 15:47 Hrs on 20.04.2022

| Sr. No | Generating stations | FRC as per NRLDC SCADA data (in %) | FRC as per generator data (in %) | Response category/Remark |
|---|---|---|---|---|
| 1 | **Dehar BBMB** | 39% | 25.1% | Unsatisfactory PFR Response |
| 2 | **Bhakra BBMB** | -1% | 3.65% | |
| 3 | **Kawai (Adani) Unit-1** | Suspected SCADA data | 101.9% | Satisfactory PFR Response |
| 4 | **Kawai (Adani) Unit-2** | | 0% | As reported, there is some issue in valve. Same will be resolved during over hauling. |
| 5 | **Rosa TPS Unit-1,2,3,4,5&6** | 21% | 0% | No response |
| 6 | **Nathpa Jhakri Unit-2** | 120% | 117.5% | Satisfactory PFR Response |
| 7 | **Nathpa Jhakri Unit-4** | | 110.7% | |
| 8 | **Singrauli Unit-6** | 29% | 19% | Unsatisfactory PFR Response |
| 9 | **Singrauli Unit-7** | | 39% | |
| 10 | **Chamera I** | 31% | 128% | Satisfactory PFR Response |
| 11 | **Kalisindh TPS Unit-1** | Suspected SCADA data | 61% | Unsatisfactory PFR Response |
| 11 | **Tehri Unit-1** | 58% | 77% | Satisfactory PFR Response |
| 13 | **Unchhahar Unit-1** | 29% | 15.2% | Unsatisfactory PFR Response |
| 14 | **Unchhahar Unit-2** | | 34% | |
| 15 | **Unchhahar Unit-3** | | 20% | |
| 16 | **Unchhahar Unit-4** | | 12.3% | |
| 17 | **Unchhahar Unit-5** | | 15.8% | |
| 18 | **Unchhahar Unit-6** | | 40% | |

## Primary Frequency Response by Generators during Grid Event at Padghe (MSETCL, Western Region) at 10:08 Hrs on 26.04.2022

| Sr. No | Generating stations | FRC as per NRLDC SCADA data (in %) | FRC as per generator data (in %) | Response category/Remark |
|---|---|---|---|---|
| 1 | Dehar BBMB | -7% | -13% | No Response |
| 2 | Bhakra BBMB | 0% | 0% | |
| 3 | Kawai (Adani) Unit-1 | 17% | 35% | Unsatisfactory PFR Response |
| 4 | Kawai (Adani) Unit-2 | | -1% | As reported, there is some issue in valve. Same will be resolved during over hauling. |
| 5 | Rosa TPS Unit-1,2,3,4,5&6 | -3% | 0% | No response |
| 6 | Singrauli Unit-6 | 3% | 20% | Unsatisfactory PFR Response |
| 7 | Singrauli Unit-7 | | 7.4% | |
| 8 | Koteshwar Unit-4 | 0% | 19% | Unsatisfactory PFR Response |
| 9 | Dadri TPS Unit-1 | 0% | 27.22% | Unsatisfactory/Poor PFR Response |
| 10 | Dadri TPS Unit-2 | | 3% | |
| 11 | Dadri TPS Unit-3 | | 11% | |
| 12 | Dadri TPS Unit-4 | | 0% | |
| 13 | Dadri TPS Unit-5 | | -11% | |
| 14 | Dadri TPS Unit-6 | | -9% | |

## Primary Frequency Response by Generators during Grid Event at YSTPS (Southern Region) at 11:51 Hrs on 29.04.2022

| Sr. No | Generating stations | FRC as per NRLDC SCADA data (in %) | FRC as per generator data (in %) | Response category/Remark |
|---|---|---|---|---|
| 1 | Nathpa Jhakri Unit-4 | 123% | 122% | Satisfactory PFR Response |
| 2 | Chamera III | 162% | 158.3% | Satisfactory PFR Response |
| 3 | Dhauliganga HEP | 0% | 13.21% | Unsatisfactory PFR Response |
| 4 | Singrauli Unit-6 | 24% | -11% | Poor Response |
| 5 | Singrauli Unit-7 | | 49% | Unsatisfactory PFR Response |
| 6 | Koteshwar Unit-4 | Suspected SCADA Data | 19% | Unsatisfactory PFR Response |

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

***NRLDC representative informed that during the event of 24th April 2022 satisfactory response has been observed from units of Napth Jhakri Unit2&4 and Tehri HEP Unit 1. It was further added that units of Chamera, Anpara, Harduaganj, Unchahar and Singrauli plant are showing poor/unsatisfactory response. He further emphasised that utilities are requested to collect field data having visualization of around 1 sec so that more precise analysis may be carried out.***

***All the concerned utilities may please go through the details and share the detailed reply considering all the points and supporting plant wise data to check the FRC response of the generator within week time to RPC/ RLDC.***

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

In last 14 OCC meetings, this point was discussed and Utilities were requested to submit the present status of PSS tuning/re-tuning and Step Response Test of their respective generators as per the below mentioned format.

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

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

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

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

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

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

***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.***

**32. RE Issues in Rajasthan**

Following major points were highlighted by NRLDC representative in the meeting;

- High Voltage Ride Through (HVRT) Non-compliance by RE Generators at interconnection point (POI). No support during high voltage observed during switching of transmission elements. Actual response observed is different from the simulated response.
- Dynamic varying Reactive power support in power factor range of +/- 0.95 lag and lead. Plant not providing required MVAr support at 45deg and 50deg C.Plants are generally operating in p.f. control mode and not in voltage control mode.
- Injection of harmonics by wind/solar generators at injection point. NRLDC vide letter NRLDC/SO-II/RE/416-433 dated 13.04.2022, also requested that latest report of harmonic content, DC injection and flicker measurement from field test may be shared with NRLDC at the earliest
- Issues related to wrong settings kept in 220kV lines and 220/33kV kV ICTs. Observed in number of events. Lack of responsibility shown by number of solar plants.
- Issues of Oscillation and Voltage fluctuation at RE plants and RE pooling stations.
- Study of RE plant behaviors with low SCR and low fault level at Point of interconnection (POI). SCR not 5 as recommended by CEA technical standards for connectivity to the grid.
- N-1 non-compliance of 400/220kV ICTs at ISTS RE Pooling substations. Presently, not mandated as per CEA's transmission planning criteria

***CTU representative appreciated the concerns raised by NRLDC representative. In the meeting, it was discussed that as suggested by MS NRPC in the RE subgroup formed at NRPC level the issues are being highlighted in OCC meeting. However, since participation from ISTS RE generators is not there, it was agreed that separate meeting may be called with RE generators of Northern region with participation from CTU, CEA, NRPC and NRLDC.***

## 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:<br><table><tr><td>◎</td><td>CHANDIGARH</td><td>Sep-2019</td></tr><tr><td>◎</td><td>DELHI</td><td>Mar-2022</td></tr><tr><td>◎</td><td>HARYANA</td><td>Aug-2021</td></tr><tr><td>◎</td><td>HP</td><td>Jan-2022</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Available</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Aug-2021</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Mar-2022</td></tr><tr><td>◎</td><td>UP</td><td>Mar-2022</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>May-2022</td></tr></table>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:<br><table><tr><td>◎</td><td>CHANDIGARH</td><td>Not Available</td></tr><tr><td>◎</td><td>DELHI</td><td>Mar-2022</td></tr><tr><td>◎</td><td>HARYANA</td><td>Mar-2022</td></tr><tr><td>◎</td><td>HP</td><td>Apr-2022</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Available</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Mar-2022</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Mar-2022</td></tr><tr><td>◎</td><td>UP</td><td>Dec-2021</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Mar-2022</td></tr><tr><td>◎</td><td>BBMB</td><td>Mar-2022</td></tr></table>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:<br><table><tr><td>◎</td><td>CHANDIGARH</td><td>Not Available</td></tr><tr><td>◎</td><td>DELHI</td><td>Increased</td></tr><tr><td>◎</td><td>HARYANA</td><td>Increased</td></tr><tr><td>◎</td><td>HP</td><td>Increased</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not increased</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Increased</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Increased</td></tr><tr><td>◎</td><td>UP</td><td>Partially increased</td></tr></table></td></tr>
</table>

| | | | | | |
|---|---|---|---|---|---|
| | | | ◎ | UTTARAKHAND | Increased |
| | | | ◎ | BBMB | Not increased |
| | | | Rajasthan, Delhi, HP and Uttarakhand were requested to submit the updated self certification report indicating increase of 0.2 Hz in AUFR settings, within one week. All states/UTs 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.<br>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 | Apr-2022 |
| | | | ◎ | RAJASTHAN | May-2022 |
| | | | ◎ | UP | Mar-2022 |
| | | | ◎ | NTPC | Feb-2022 |
| | | | FGD status details are enclosed as **Annexure-A.I.II**.<br>All States/utilities are requested to update status of FGD installation progress on monthly basis. | | |
| 5 | Information about variable charges of all generating units in the Region | The variable charges detail for different generating units are available on the MERIT Order Portal. | All states/UTs are requested to submit daily data on MERIT Order Portal timely. | | |

| 6 | Reactive compensation at 220 kV/ 400 kV level at 15 substations | | | |
|---|---|---|---|---|
| | State / Utility | Substation | Reactor | Status |
| i | POWERGRID | Kurukshetra | 500 MVAr TCR | Anticipated commissioning: July 2022 (90% supplies received from GE and rest is expected by Feb'22) |
| ii | DTL | Peeragarhi | 1x50 MVAr at 220 kV | PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection (delay due to pending supply of reactor bushings). GIS Bay is already available. |
| iii | DTL | Harsh Vihar | 2x50 MVAr at 220 kV | PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection (delay due to pending supply of rector bushings). GIS Bay is already available. |
| iv | DTL | Mundka | 1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV | Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision. |
| v | DTL | Bamnauli | 2x25 MVAr at 220 kV | Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision. |
| vi | DTL | Indraprastha | 2x25 MVAr at 220 kV | Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision. |
| vii | DTL | Electric Lane | 1x50 MVAr at 220 kV | Under Re-tendering due to Single Bid |
| viii | PUNJAB | Dhuri | 1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV | 400kV Reactors - LOA issued on dated. 17.08.2021 and date of completion of project is 18 months from the date of LOA.<br>220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA. |
| ix | PUNJAB | Nakodar | 1x25 MVAr at 220 kV | 220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA. |
| x | PTCUL | Kashipur | 1x125 MVAR at 400 kV | Tender has been invited in first week of Jan'22. |

| | | | | |
|---|---|---|---|---|
| xi | RAJASTHAN | Akal | 1x25 MVAr | LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. 2nd instalment has been received on dt. 30.07.2021. The erection work of 3 Reactors is under progress and shall be commissioned by 30.06.2022. |
| xii | RAJASTHAN | Bikaner | 1x25 MVAr | LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. 2nd instalment has been received on dt. 30.07.2021. The erection work of 3 Reactors is under progress and shall be commissioned by 30.06.2022. |
| xiii | RAJASTHAN | Suratgarh | 1x25 MVAr | LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. 2nd instalment has been received on dt. 30.07.2021. The erection work of 3 Reactors is under progress and shall be commissioned by 30.06.2022. |
| 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<br>Total: 8 | Utilized: 6<br>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<br>Total: 6 | Utilized: 2<br>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<br>Total: 6 | Utilized: 6<br>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<br>Total: 8 | Utilized: 6<br>Unutilized: 2 | • 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line | - | HVPNL to update the status. |
| 5 | 400/220 kV, 2x315 MVA Dehradun | Commissioned: 6<br>Total: 6 | Utilized: 2<br>Unutilized: 4 | • Network to be planned for 4 bays | - | PTCUL to update the status. |
| 6 | Shahjahanpur, 2x315 MVA 400/220 kV | Commissioned: 6<br>Approved/Under Implementation:1<br>Total: 7 | Utilized: 3<br>Unutilized: 3<br>(2 bays to be utilized shortly)<br>Approved/Under Implementation:1 | • 220 kV D/C Shahajahanpur (PG) - Gola line | - | UPPTCL to update the status. |
| | | | | • LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG) – under commissioning | 21.02.2022 | Updated in 192nd OCC by UPPTCL. |
| 7 | Hamirpur 400/220 kV Sub-station | Commissioned: 8<br>Total: 8 | Utilized: 4<br>Unutilized: 4<br>(2 bays to be utilized shortly) | • 220 kV Hamirpur-Dehan D/c line | Mar'22 | Updated in 192nd OCC by HPPTCL |
| | | | | • Network to be planned for 4 bays | - | HPPTCL to update the status. |
| 8 | Sikar 400/220kV, 1x 315 MVA S/s | Commissioned: 8<br>Total: 8 | Utilized: 4<br>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<br>Total: 6 | Utilized: 0<br>Unutilized: 6 | • 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line | - | Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status. |
| | | | | • 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line. | - | Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status. |
| | | | | • 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line. | - | Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status. |
| 10 | Jind 400/220kV S/s | Commissioned: 4<br>Approved:4<br>Total: 8 | Utilized: 4<br>Unutilized: 0<br>Approved:4 | • LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor | - | HVPNL to update the status. |
| 11 | 400/220kV Tughlakabad GIS | Commissioned: 6<br>Under Implementation: 4<br>Total: 10 | Utilized: 6<br>Unutilized: 0<br>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<br>Total: 6 | Utilized: 0<br>Unutilized: 6 | • HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s | Jan'23 | Updated in 192nd OCC by HPPTCL |
| | | | | • Network to be planned for 4 bays | - | HPPTCL to update the status. |
| 13 | 400/220kV Kadarpur | Commissioned: 8 | Utilized: 0 | • LILO of both circuits of 220 KV Pali - Sector 56 D/C line at Kadarpur along with augmentation of existing conductor from 220 KV Sector-56 to LILO point with 0.4 sq inch AL-59 conductor. | - | HVPNL to update the status. |

| 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 | - | HVPNL to update the status. |
| 14 | 400/220kV Sohna Road Sub-station | Commissioned: 8<br>Total: 8 | Utilized: 0<br>Unutilized: 8 | • LILO of both circuits of 220kV D/c Sector-69 - Roj Ka Meo line at 400kV Sohna Road | - | HVPNL to update the status. |
| | | | | • LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road | - | HVPNL to update the status. |
| 15 | 400/220kV Prithla Sub-station | Commissioned: 8<br>Total: 8 | Utilized: 0<br>Unutilized: 8 | • LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line | - | HVPNL to update the status. |
| | | | | • 220kV D/C for Sector78, Faridabad | - | HVPNL to update the status. |
| 16 | 400/220kV Sonepat Sub-station | Commissioned: 6<br>Under Implementation:2<br>Total: 8 | Utilized: 2<br>Unutilized: 2<br>Under Implementation:2 | • LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat | | HVPNL to update the status. |
| | | | | • Sonepat - HSIISC Rai 220kV D/c line | Jul'22 | Updated in 192nd OCC |
| 17 | 400/220kV Neemrana Sub-station | Commissioned: 6<br>Total: 6 | Utilized: 4<br>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<br>Total: 6 | Utilized: 4<br>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<br>Total: 10 | Utilized: 8<br>Unutilized: 2 | • Network to be planned for 2 bays | - | PSTCL to update the status. |
| 20 | 400/220kV Roorkee Sub-station | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • Roorkee (PG)-Pirankaliyar 220kV D/c line | - | PTCUL to update the status. |
| 21 | 400/220kV Lucknow Sub-station | Commissioned: 8<br>Total: 8 | Utilized: 4<br>Unutilized: 4 | • Network to be planned for 4 bays | - | UPPTCL to update the status. |
| 22 | 400/220kV Gorakhpur Sub-station | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • Network to be planned for 2 bays | - | UPPTCL to update the status. |
| 23 | 400/220kV Fatehpur Sub-station | Commissioned: 8<br>Under Implementation:2<br>Total: 10 | Utilized: 6<br>Unutilized: 2<br>Under Implementation:2 | • Network to be planned for 4 bays | - | UPPTCL to update the status. |
| 24 | 400/220kV Abdullapur Sub-station | Commissioned: 10<br>Under Implementation:2<br>Total: 12 | Utilized: 10<br>Unutilized: 0<br>Under Implementation:2 | • Abdullapur – Rajokheri 220kV D/c line | May'22 | Updated in 194th OCC by HVPNL |
| 25 | 400/220kV Pachkula Sub-station | Commissioned: 8<br>Under tender:2<br>Total: 10<br>Out of these 10 nos. 220kV Line Bays, 2 bays would be used by the lines being constructed by POWERGRID (Chandigarh-2) and balance 8 nos. bays would be used by HVPNL | Utilized: 2<br>Unutilized: 4<br>Under Implementation:2 | • Panchkula – Pinjore 220kV D/c line | 31.12.2022 | Updated in 194th OCC by HVPNL |
| | | | | • Panchkula – Sector-32 220kV D/c line | 31.12.2022 | Updated in 194th OCC by HVPNL |
| | | | | • Panchkula – Raiwali 220kV D/c line | Commissioned | Updated in 194th OCC by HVPNL |
| | | | | • Panchkula – Sadhaura 220kV D/c line: Sep'23 | Sept'23 | Updated in 194th OCC by HVPNL |
| | | Commissioned:7 | Utilized: 6 | • Amritsar – Patti 220kV S/c line | - | PSTCL to update the status. |

| Sl. No. | Substation | Downstream network bays | Status of bays | Planned 220 kV system and Implementation status | Revised Target | Remarks |
|---|---|---|---|---|---|---|
| 26 | 400/220kV Amritsar S/s | Approved in 50th NRPC- 1 no.<br>Total: 8 | Unutilized: 1<br>Approved in 50th NRPC- 1 no. | • Amritsar – Rashiana 220kV S/c line<br>(2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC) | - | PSTCL to update the status. |
| 27 | 400/220kV Bagpat S/s | Commissioned: 8<br>Total: 8 | Utilized:6<br>Unutilized: 2 | ·• Bagpat - Modipuram 220kV D/c line | - | UPPTCL to update the status. |
| 28 | 400/220kV Bahardurgarh S/s | Commissioned: 4<br>Total: 4 | Utilized:2<br>Unutilized: 2 | • Network to be planned for 2 bays. | | HVPNL to update the status. |
| 29 | 400/220kV Jaipur (South) S/s | Commissioned: 4<br>Total: 4 | Utilized:2<br>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<br>Total: 8 | Utilized: 2<br>Unutilized: 6 | • Sohawal - Barabanki 220kV D/c line | - | UPPTCL to update the status. |
| | | | | • Sohawal - New Tanda 220kV D/c line | - | UPPTCL to update the status. |
| | | | | • Network to be planned for 2 bays | - | UPPTCL to update the status. |
| 31 | 400/220kV, Kankroli | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • Network to be planned for 2 bays | - | RVPNL to update the status |
| 32 | 400/220kV, Manesar | Commissioned: 8<br>Total: 8 | Utilized: 4<br>Unutilized: 4 | • Network to be planned for 4 bays | - | HVPNL to update the status |
| 33 | 400/220kV, Saharanpur | Commissioned: 6<br>Under Implementation:2<br>Total: 8 | Utilized: 6<br>Unutilized: 0<br>Under Implementation:2 | • Network to be planned for 2 bays | - | UPPTCL to update the status |
| 34 | 400/220kV, Wagoora | Commissioned: 10<br>Total: 10 | Utilized: 6<br>Unutilized: 4 | • Network to be planned for 4 bays | - | PDD, J&K to update the status. |
| 35 | 400/220kV, Ludhiana | Commissioned: 9<br>Total: 9 | Utilized: 8<br>Unutilized: 1 | • Network to be planned for 1 bay | - | PSTCL to update the status |
| 36 | 400/220kV, Chamba (Chamera Pool) | Commissioned: 3<br>Under tender:1<br>Total: 4 | Utilized:3<br>Unutilized: 0<br>Under tender:1 | • Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line | - | HPPTCL to update the status |
| 37 | 400/220kV, Mainpuri | Commissioned: 6<br>Under Implementation:2<br>Total: 8 | Utilized: 6<br>Unutilized: 0<br>Under Implementation:2 | • Network to be planned for 2 bays | - | UPPTCL to update the status |
| 38 | 400/220kV, Patiala | Commissioned: 8<br>Total: 8 | Utilized: 6<br>Unutilized: 2 | • Network to be planned for 2 bays | - | PSTCL to update the status |

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

| Sl. No. | Name of Substation | MVA Capacity | Expected Schedule | | Downstream connectivity by States |
|---|---|---|---|---|---|
| 1 | 400/220kV Dwarka-I GIS (8 nos. of 220kV bays) | 4x 500 | Mar'22 | | DTL to update the status |
| 2 | 220/66kV Chandigarh GIS (8 nos. of 66kV bays) | 2x 160 | Apr'22 | | Chandigarh to update the status. |
| 3 | 400/220kV Jauljivi GIS<br>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<br>• 220kV Brammah-Jauljibi line<br>PTCUL to update the status of lines. |

Annexure-A.I.II

# FGD Status

# Updated status of FGD related data submission

| **NTPC (25.02.2022)** |
|---|
| MEJA Stage-I |
| RIHAND STPS |
| SINGRAULI STPS |
| TANDA Stage-I |
| TANDA Stage-II |
| UNCHAHAR TPS |
| **UPRVUNL (21.05.2022)** |
| ANPARA TPS |
| HARDUAGANJ TPS |
| OBRA TPS |
| PARICHHA TPS |

| **PSPCL (23.05.2022)** |
|---|
| GGSSTP, Ropar |
| GH TPS (LEH.MOH.) |
| **RRVUNL (06.05.2022)** |
| CHHABRA SCPP |
| CHHABRA TPP |
| KALISINDH TPS |
| KOTA TPS |
| SURATGARH SCTPS |
| SURATGARH TPS |

# Updated status of FGD related data submission

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

| |
|---|
| **HGPCL (21.03.2022)** |
| PANIPAT TPS |
| RAJIV GANDHI TPS |
| YAMUNA NAGAR TPS |

| |
|---|
| **Adani Power Ltd. (18.02.2022)** |
| KAWAI TPS |

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

# Pending submissions

| **GVK Power Ltd.** |
| --- |
| GOINDWAL SAHIB |

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

# Target Dates for FGD Commissioning (Utility-wise)

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

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

| | |
|---|---|
| **L&T Power Development Ltd (Nabha)** | Nabha TPP (Rajpura TPP) U#1 (Target: 30-04-2021), Nabha TPP (Rajpura TPP) U#2 (Target: 28-02-2021) |
| **Lalitpur Power Gen. Company Ltd.** | LALITPUR TPS U#1 (Target: 31-12-2024), LALITPUR TPS U#2 (Target: 30-09-2024), LALITPUR TPS U#3 (Target: 30-06-2024) |
| **Lanco Anpara Power Ltd.** | ANPARA C TPS U#1 (Target: 31-12-2023), ANPARA C TPS U#2 (Target: 31-12-2023) |
| **Prayagraj Power Generation Company Ltd.** | PRAYAGRAJ TPP U#1 (Target: 31-10-2024), PRAYAGRAJ TPP U#2 (Target: 31-10-2024), PRAYAGRAJ TPP U#3 (Target: 31-12-2024) |
| **PSPCL** | GH TPS (LEH.MOH.) U#1 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#2 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#3 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#4 (Target: 31-12-2024), GGSSTP, Ropar U#3 (Target: 31-03-2022), GGSSTP, Ropar U#4 (Target: 31-05-2022), GGSSTP, Ropar U#5 (Target: 31-07-2022), GGSSTP, Ropar U#6 (Target: 30-09-2022) |

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

भारत सरकार
**Government of India**
विद्युत मंत्रालय
**Ministry of Power**
केन्द्रीय विद्युत प्राधिकरण
**Central Electricity Authority**
प्रचालन निष्पादन प्रबोधन प्रभाग
**Operation Performance Monitoring Division**

**No. CEA/OPM/DGR/2022/**99-182 **Dated : 14.02.2022**

**To,**

**As per List attached**

**Sub: Furnishing of Daily/Monthly Generation and outages Data online at National Power Portal (NPP), in fulfilment of obligation under Section 74 of Electricity Act 2003-regd.**

Sir,

Under the relevant provision of The Electricity Act, 2003, this office is entrusted with the responsibility to collect & record the data concerning the generation of power and publish various reports like Daily Generation Report, Monthly Generation Report, PLF report etc. All these reports need to be prepared based on the information furnished by various generating stations/utilities on daily, monthly and yearly basis in a time bound manner. To enable various Generating Companies in the country submit the aforesaid generation data to this office online, Login IDs and Passwords were issued a few years back to the nodal officers nominated by the respective companies. Most of the Generating Companies have been submitting the generation data online. However, your Generating Company has still not switched over to online mode of submission of generation data despite repeated requests, leading to delay in preparation/issuance of related reports. This has been viewed seriously at the highest level in the government.

In this connection, your attention is invited to Section 74 of The Electricity Act 2003 and CEA (Furnishing of Statistics, Returns and Information) Regulations, 2007, which stipulate that ***it shall be the duty of every licensee, generating company or person generating electricity for its or his own use to furnish to Authority such statistics, returns or other information relating to generation, transmission, distribution, trading and use of electricity as it may require and at such times and in such form and manner as may be specified by the Authority.***

Accordingly, it is requested once again to ensure timely furnishing of daily &monthly generation and outage data of your power stations at the National Power Portal (NPP) online with immediate effect. This may be treated as the final notice to take necessary action in the matter immediately, failing which action may be initiated against the Generating Company under ***Section 146*** for non-compliance of The Electricity Act, 2003.

Further incase of any problem in online data feeding into the NPP, the nodal officer may contact this Division or NIC Officers, Sh. Ajay Badola, (Mob. No. 9899382669) or Sh. Akash, (Mob. No. 9810496775) or may send email at npp.suppoprt@nic.in for assistance.

(राकेशगोयल)
मुख्य अभियंता

Already replied the email dt 17/3/22

निदेशक (परि./तक./का./वित्त)/कं. सचिव
Director (Proj./Tech./Pers./Fin.)/Co. Secy.



ED (O&M)

प्राथमिकता पर

ओ एण्ड एम विभाग
महाप्रबंधक-I
महाप्रबंधक-II
महाप्रबंधक-III
महाप्रबंधक-IV

ED(O&M)/469
21-3-22

(i)---------- LOWER PERIYAR HPS
(j)---------- NARIAMANGLAM HPS
(k)---------- THOTTIYAR HPS

**17----------LARSEN & TOURBO LTD.**
(a)----------SINGOLI BHATWARI HPS

**18----------MALANA POWER COMPANY LIMITED**
(a)----------MALANA HPS

**19----------MEGHALAYA ENERGY CORP. LTD.**
(a)----------MYNTDU(LESHKA) St-1 HPS
(b)---------- NEW UMTRU HPS
(c)---------- KYRDEMKULAI HPS
(d)---------- UMIAM HPS ST-I
(e)---------- UMIAM HPS ST-IV

**20----------NHPC LIMITED**
(a)----------PARBATI-II HPS

**21----------NSL TIDONG POWER GENERATION PRIVATE LIMITED**
(a)----------TIDONG HPS

**22----------ORISSA HYDRO POWER CORPORATION LIMITED**
(a)----------UPPER KOLAB HPS
(b)---------- HIRAKUD HPS
(c)---------- RENGALI HPS
(d)---------- CHIPLIMA HPS
(e)---------- BALIMELA HPS
(f)---------- UPPER INDRAVATI HPS

**23----------PUNJAB STATE POWER CORP. LTD.**
(a)----------MUKERIAN-III HPS
(b)---------- ANANDPUR SAHIB-II HPS
(c)---------- MUKERIAN-II HPS
(d)---------- SHANAN HPS
(e)---------- MUKERIAN-IV HPS
(f)---------- ANANDPUR SAHIB-I HPS
(g)---------- RANJIT SAGAR HPS
(h)---------- GH TPS (LEH.MOH.)
(i)---------- MUKERIAN-I HPS

**24----------RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED**
(a)----------MAHI BAJAJ-I HPS
(b)---------- SURATGARH STPS
(c)---------- DHOLPUR CCPP
(d)---------- JAWAHAR SAGAR HPS
(e)---------- R P SAGAR HPS
(f)---------- SURATGARH TPS

# Re: Furnishing of Daily/Monthly Generation and outages online at NPP - regd

**From :** Satyam Soni <satyam.20@cea.nic.in> Tue, Mar 22, 2022 04:48 PM

**Subject :** Re: Furnishing of Daily/Monthly Generation and outages online at NPP - regd 2 attachments

**To :** O&M <hod-om-co@nhpc.nic.in>

**Cc :** Rakesh Goyal <goyal.rakesh@nic.in>, Anita Verma <anitaverma@nic.in>, Sumit Goel <sumit.goelcea@gov.in>, amitabhjha@nhpc.nic.in

Sir,
With reference to trailing mail, it is intimated that entry of Daily Generation Data on NPP is not required for those units whose COD have not been done.
However, Daily Generation data should be entered on daily basis on NPP after declaration of COD for said units.

AM (E)

Regards,
Satyam Soni
Assistant Director (OPM)

---

**From:** "O&M" <hod-om-co@nhpc.nic.in>
**To:** "satyam 20" <satyam.20@cea.nic.in>
**Cc:** "goyal rakesh" <goyal.rakesh@nic.in>, "Amitabh Jha" <amitabhjha@nhpc.nic.in>
**Sent:** Thursday, February 17, 2022 5:55:21 PM
**Subject:** Re: Furnishing of Daily/Monthly Generation and outages online at NPP - regd

**Sir,**

This is in reference to your letter no. CEA/OPM/DGR/2022 dated 14.02.2022 on captioned subject, vide which, it has been intimated that the Generation/outages data in respect of Parbati-2 HE Project (NHPC) is not being furnished on NPP portal. In this regard, it is intimated that all the units of Parbati -2 HE project have been commissioned but the COD (Commercial Operation Declaration) of units is yet to be done. The generation from Parbati-2 HE project is being treated as infirm power and consequently the generation/outages data of Parbati-2 HE project is not being entered on NPP portal. However, the generation/outages data of other power stations of NHPC are being submitted on NPP portal within scheduled time on daily basis.

Thanking You.

Regards,

**Executive Director (O&M)**
**O&M Division**
**NHPC Limited**

<ashok@powergrid.in>, "NARESH BHANDARI" <ms-nrpc@nic.in>, "Alok kumar POSOCO" <Alok.kumar@posoco.in>, "vipul cea" <vipul.cea@gov.in>, "Kaushik Panditrao" <kaushik.panditrao@gov.in>, "Reeturaj Pandey" <pandeyr.cea@gov.in>, "rk porwal" <rk.porwal@posoco.in>, "K K Sarkar {के. के. सरकार}" <kksarkar@powergrid.in>, "Sourov Chakraborty {एस. चक्रवर्ती}" <schakraborty@powergrid.in>, "Anshul Gupta {अंशुल गुप्ता}" <anshulgupta@powergrid.in>, "Ankita Singh {अंकिता सिंह}" <ankita@powergrid.in>, "Jasbir Singh {जसबीर सिंह}" <jasbir@powergrid.in>, "MADHUSUDAN MEENA {मधुसूदन मीना}" <madhusudanmeena@powergrid.in>, "NARENDRA SATHVIK RANGANATH . {नरेंद्र सात्विक आर}" <rnsathvik@powergrid.in>, "Roushan Kumar {रौशन कुमार}" <roushan.k@powergrid.in>, "Sandeep Kumawat {संदीप कुमावत}" <sandeepk@powergrid.in>, "Yatin Sharma {यतिन शर्मा}" <yatinsharma@powergrid.in>
**Sent:** Saturday, May 21, 2022 6:33:20 PM
**Subject:** RE: SUCRL_ICT failure details at PSS-2, Bhadla.

Dear Sir

As per the Root Cause Analysis received through trailing email, it is observed that Fault current of approximately 3kA occurred in W-phase of HV side (220kV) of the Transformer. This fault current persisted for 375ms. During this fault period, it seems that some internal fault occurred in the transformer, which led to fault current shoot up to approximately 12.4kA RMS.

The fault current of 3kA was within the maximum design fault of 3.28kA as per GTP provided. When the transformer HV winding was burnt, the transformer failed (leading to shorted transformer impedance) and the fault of 12.4kA was fed through the 220kV system and the same is not above the design fault level of 220kV system (i.e. 40kA).

**Further, it may be mentioned that the fault current through transformer is governed by transformer impedance, which is characterized by the design of the transformer not bus fault level. As per the short circuit studies conducted and shared, this is clearly evident that fault level current through transformer in all cases is less than rated level in simulated cases of 33kV faults. Therefore Bhadla PG 220kV bus fault level is not impacting the through fault current of transformer more than rated level in all studied cases as shared.**

Further Bhadla PS also has many other RE developers (+2600 MW excluding saurya urja) feeding power through 33/220kV transformers who have not reported any such issue.

In view of the above, M/s SUCRL may review the transformer design w.r.t. transformer impedance, share dynamic short circuit test report as well as make efforts for reduction in frequent 33kV cable faults at SUCRL end.

Regards
Kashish Bhambhani
CTUIL

**From:** Vinod Halge <vinod.halge@sauryaurja.com>
**Sent:** Tuesday, April 12, 2022 10:56
**To:** Kashish Bhambhani { कशिश भम्भानी} <kashish@powergrid.in>
**Cc:** Bibhu Biswal (ILFS Energy) <bibhu.biswal@ilfsindia.com>
**Subject:** SUCRL_ICT failure details at PSS-2, Bhadla.



Dear Sir,

With reference to our discussion held at your office regarding reduction of Bus Fault Level at Bhadha - I GSS which will help to reduce the short circuit current feeding through the grid during fault at LV side of Transformer. As suggested during the meeting, analysis of fault events to be done and accordingly further discussion will be taken up.

Submitting following data for your perusal & seeking your guidance to resolve ICT failure issue.

1) SLD of pooling substation
2) GTP of Transformer
3) ICT-01 Failure DR
4) ICT-03 Failure DR
5) ICT-04 Failure DR
6) CGL RCA Report
7) PPT_Reduction of bus fault level

Please let us know any more details required for analysis.

Thanks & Regards,
Vinod V Halge
Saurya Urja Company of Rajasthan Ltd.
Mobile + 91-9116032104
Website: http://www.sauryaurja.com/ | Email id: vinod.halge@sauryaurja.com

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

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

No: - 1255 /CE (PSO)/SE(R&A)/EE-II/SPS Dated: - 13.5. 2022

**Member Secretary,**
**NRPC 18-A, SJSS Marg,**
**Katwaria Sarai, New Delhi – 110016**

**Subject: - Regarding inclusion of proposed SPS Scheme at Obra TPS in the agenda for 195th OCC meeting of NRPC, New Delhi.**

To ensure safe and secure grid operation at Obra TPS and connected transmission system, a System Protection Scheme has been proposed. Kindly find enclosed herewith logic of proposed SPS at Obra TPS for its inclusion in the agenda of upcoming 195th OCC meeting of NRPC and its approval.

**Encl: As above**

13/5/2022
**(Emaduddin khan)**
Chief Engineer (PSO)

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

Copy forwarded to following for information and necessary action:-

1. Director (SLDC), Vibhuti Khand – II, Gomti Nagar, Lucknow.
2. Director (Operation), UPPTCL, 11th Floor, Shakti Bhawan Extn., Lucknow.
3. Director (Technical), UPRVUNL, 8th Floor, Shakti Bhawan Extension, Lucknow.
4. Director (Commercial & Planning), UPPTCL, 5th Floor Shakti Bhawan, Lucknow.
5. Chief Engineer (C&S), UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.
6. Chief General Manager (Incharge), NRLDC, 18 – A SJSS Marg, Katwaria Sarai, New Delhi, 110016.
7. Superintending Engineer (SC), UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.

13/5/2022
**(Emaduddin khan)**
Chief Engineer (PSO)

## Logic for proposed SPS (System Protection Scheme) for ICTs at Obra TPS

| Name of Substation | ICT Rating | Tripping Logic -I | | | Tripping Logic -II | | | Tripping Logic –III (Applicable when one of the 315 MVA ICT trip) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | %setting | Time Delay | Priority of feeder for load cut off | %setting | Time Delay | Priority of feeder for load cut off | %setting | Time Delay | Action |
| 400kV Obra TPS | 315 MVA ICT -I | Above 95% of rated current | 5 sec for Group 1. 2 min for Group 2 | Group 1. 220 kV Obra-Rewa Road ckt 1 &2 Group 2. 220 kV Obra-Mirzapur line | Above 105% of rated current | Instantaneous | 220 kV Obra-Rewa Road ckt 1 &2 and 220 kV Obra- Mirzapur lines trip simultaneously | Above 70% of rated current prior to tripping of 315 MVA ICT | Instantaneous | 220 kV Obra-Rewa Road ckt 1 &2 and 220 kV Obra- Mirzapur lines trip simultaneously |
| | 315 MVA ICT -II | Above 95% of rated current | 5 sec for Group 1. 2 min for Group 2 | | Above 105% of rated current | Instantaneous | | Above 70% of rated current prior to tripping of 315 MVA ICT | Instantaneous | |
| | 240 MVA ICT -III | Above 95% of rated current | 5 sec for Group 1. 2 min for Group 2 | | Above 105% of rated current | Instantaneous | | Above 70% of rated current prior to tripping of 315 MVA ICT | Instantaneous | |

**Note- 1-SPS shall operate if any one of the condition is met that is logic mentioned above is OR.**

**2- In Tripping logic III, pre disturbance loading has been used for actuation of SPS in order to avoid inherent time taken by SPS . SPS shall operate instantaneously if predisturbance loading is above 70 % AND any one of the 315 MVA ICT gets tripped.**

13/3/2020