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/106/01/2021/ 10435-10476 दिनांक: 09.11.2021

विषय: उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 188वीं बैठक का कार्यवृत |

Subject: Minutes of 188th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 188वीं बैठक दिनांक 22.10.2021 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 |

188th meeting of the Operation Co-ordination Sub-Committee of NRPC was held on 22.10.2021. 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

-sd-

(सौमित्र मजूमदार)

अधीक्षण अभियंता (प्रचालन)

सेवा में,

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

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 188वीं बैठक का कार्यवृत्त

188th meeting of OCC of NRPC was held on 22.10.2021 through video conferencing.

खण्ड-क: उ.क्षे.वि.स. **PART-A:NRPC**

1. Confirmation of Minutes

Minutes of 187th OCC meeting was issued on 12.10.2021. OCC confirmed the minutes.

2. Review of Grid operations of September 2021

2.1. Anticipated vis-à-vis Actual Power Supply Position (Provisional) for September 2021

Reasons submitted by states for significant deviation of actual demand from anticipated figures during the month of September 2021 are as under:

Delhi

The demand of Delhi has not picked up in Sept-2021 because of rainy weather throughout the September month.

Punjab

Actual energy/demand was less as compared to anticipated energy/demand due to good rainfall during month of September 2021.

Haryana

Consumption and Demand of Haryana state remained lower than anticipated due to regular / more than anticipated rain forecasted during September – 2021.

Rajasthan

The Energy consumption & Peak demand decreased by 20.6% & 14% respectively w.r.t. Anticipated Energy requirement & Peak demand for Sept-2021 due to wide spread rains in the state during the month of September' 2021.

Uttar Pradesh

Actual energy consumption and demand met was lower than anticipated due to wide spread rain in the state during the month of September 2021.

OCC again expressed concern about non-participation of official from some of the states and UTs in the meeting and requested all the utilities to participate in the meeting.

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 September, 2021 was enclosed in the agenda and same was discussed in the meeting.

No significant deviation in any of the states was observed.

2.3. **The highlights of grid operation during September 2021 are as follows**:

2.3.1. Frequency remained within the IEGC band for 77.01% of the time during September 2021, which is lower than that of last year during same month (September 2020) when frequency (within IEGC band) remained 84.01% of the time. For further improvement, utilities were advised to take necessary action to improve the frequency regime by not changing abruptly the loads at block boundaries and assuring primary response from the generators.

2.3.2. Maximum and minimum load for the region during September 2021 were 64,026 MW (06.09.2021 at 20:40 hrs) and 37,105 MW (24.09.2021 at 06:05 hrs).

2.3.3. The average Thermal generation in September 2021 decreased by 5.73% (36.71 MU/day) with respect to the corresponding month in the previous year. The details are enclosed at **Annexure-A.I (A).**

2.3.4. The average Hydro generation in September 2021 decreased by 3.56% (11.51 MU/day) with respect to the corresponding month in the previous year. The details are enclosed at **Annexure-A.I (B).**

2.3.5. The average Nuclear generation in September 2021 increased by 3 MU/day with respect to the corresponding month in the previous year. The details are enclosed at **Annexure-A.I (C).**

2.3.6. The average Renewable generation in September 2021 increased by 27.10% (13.46 MU/day) with respect to the corresponding month in the previous year. The details are enclosed at **Annexure-A.I (D).**

3. Maintenance Programme of Generating Units and Transmission Lines

3.1. The maintenance programme of generating units and transmission lines for the month of September 2021 was deliberated in the meeting on 21.10.2021.

4. Planning of Grid Operation

4.1. Anticipated Power Supply Position in Northern Region for November 2021

The updated anticipated Power Supply Position for November 2021 is as below:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	110	260	No revision submitted
	Requirement	100	210	
	Surplus / Shortfall	10	50	
	% Surplus / Shortfall	10.0%	23.8%	
DELHI	Availability	3237	4904	21-Oct-21
	Requirement	1950	3800	
	Surplus / Shortfall	1287	1104	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	% Surplus / Shortfall	66.0%	29.1%	
HARYANA	Availability	4390	9590	20-Oct-21
	Requirement	3750	6700	
	Surplus / Shortfall	640	2890	
	% Surplus / Shortfall	17.1%	43.1%	
HIMACHAL PRADESH	Availability	850	1762	12-Oct-21
	Requirement	858	1742	
	Surplus / Shortfall	-8	20	
	% Surplus / Shortfall	-1.0%	1.1%	
J&K and LADAKH	Availability	1070	3740	No revision submitted
	Requirement	1630	2550	
	Surplus / Shortfall	-560	1190	
	% Surplus / Shortfall	-34.4%	46.7%	
PUNJAB	Availability	4700	9210	22-Oct-21
	Requirement	4870	6200	
	Surplus / Shortfall	-170	3010	
	% Surplus / Shortfall	-3.5%	48.5%	
RAJASTHAN	Availability	7770	17910	21-Oct-21
	Requirement	7880	13500	
	Surplus / Shortfall	-110	4410	
	% Surplus / Shortfall	-1.4%	32.7%	
UTTAR PRADESH	Availability	8400	17000	13-Oct-21
	Requirement	8100	17000	
	Surplus / Shortfall	300	0	
	% Surplus / Shortfall	3.7%	0.0%	
UTTARAKHAND	Availability	981	1890	07-Oct-21
	Requirement	1020	1950	
	Surplus / Shortfall	-39	-60	
	% Surplus / Shortfall	-3.8%	-3.1%	
NORTHERN REGION	Availability	31508	61700	
	Requirement	30158	50000	
	Surplus / Shortfall	1350	11700	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	% Surplus / Shortfall	4.5%	23.4%	

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	Aug-2021
Haryana	Apr-2018	Aug-2021
Himachal Pradesh	Apr-2018	Aug-2021
Punjab	Apr-2018	Jul-2021
Rajasthan	Apr-2018	Aug-2021
Uttar Pradesh	Apr-2018	Jul-2021

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

6. System Study for Capacitor requirement in NR for the year 2019-20

6.1. OCC forum was intimated that NRPC in its 48th meeting decided that the study report for 2019-20 along with the guidelines for finding the capacitor requirement at 11/33 kV level in NR would be submitted by CPRI. Accordingly, CPRI have submitted the system study report on 24.02.2021 and thereafter same was shared with the constituent states. The recommended capacitor compensation, additionally required as per the report is 352MVAr. The report has brought out the additional requirement of 137MVar and 215MVar compensation for Punjab and J&K respectively. Moreover, empirical relationship for capacitor requirement against voltage profile at 11 kV, based on two configurations has been worked out in the report.

6.2. In the 45th TCC / 48th NRPC meeting, it was decided after the submission of report for 2019-20 and the guidelines, the same would be studied by the same sub-group who had earlier recommended for guidelines and foreclosure of the contract. Based on Committee's recommendations, NRPC Sectt. can process the pending bills of Rs. 14 lakhs (Rs. 2 + 12 Lakhs), excluding taxes along with foreclosure of the contract. Accordingly, submitted report needs to be examined by the Committee.

6.3. In 181st OCC, forum decided that sub-group comprising of following officers would study the report and submit the recommendation report within two weeks:

6.4. NRPC Sectt. sought comments/observations on the CPRI report from all the states via e-mail. Comment from Delhi was received. Rajasthan, HP, Punjab, Haryana submitted NIL comment. Comment from rest of the members was not received.

6.5. In the 182nd OCC meeting, forum decided that a video-conferencing meeting may be held by members of sub-group to finalize the comments, latest by 30th April, 2021 and compiled comments may be sent to CPRI for necessary correction in the report.

6.6. The meeting of sub-group was held on 03.05.21. In the meeting, sub-group members decided to get PSSE file from CPRI for better understanding, which was later shared with them.

6.7. In 183rd OCC meeting, NRPC representative requested for any other comments on the CPRI report, if remaining, from any of the members. Sub-group committee member from Rajasthan stated that since the CPRI report is for the year 2019-20, old data needs to be collected and then values in the CPRI report would be checked. It was further intimated that around 2-3 days' time would be required for this task. Forum decided that after receiving observations/comments from Rajasthan, the compiled observations / comments may be sent to CPRI so that necessary corrections may be done in the draft report.

6.8. In 184th OCC, forum was apprised that compiled comments have been mailed to CPRI vide email dated 28th May'21 with a request to submit the corrected report within two weeks' time.

6.9. CPRI vide email dated 31st May'21 communicated that majority of comments are on the modeling of base case PSSE file. Since the file is given by NRPC and CPRI has not modeled it; so, they are not in position to make any comment on the accuracy & modeling of file.

6.10. In the 185th OCC, NRPC stated that CPRI has submitted on 28th June 2021 its point-wise reply on the observations of sub-group along with updated report. OCC forum decided that a video-conferencing meeting may be held within sub-group members and CPRI for further discussion on reply of CPRI.

6.11. In the 186th OCC meeting, NRPC representative apprised the forum that in line with decisions of 185th OCC, a meeting was held on 06.08.2021 under the chairmanship of MS, NRPC through Video Conferencing. It was attended by members of the sub-group, CPRI representatives, and officials from NRPC Sectt & NRLDC.

6.12. It was also stated that in the meeting dt. 06.08.2021, comments of the sub-group on the latest version of CPRI report were deliberated in detail. After weighing the merits of the original & revisions of the report, following were decided:

- First Report submitted by CPRI in September, 2020 shall be considered as the reference report. CPRI confirmed that the base-case of 11.07.2018 at 00:45 hrs. received from NRPC Sectt has been used for preparing September, 2020 report.

- Comments from all utilities and NRLDC on September 2020 report must be submitted to NRPC Sectt, latest by 24.08.2021.

- NRPC Sectt, after examination, shall share with CPRI the compiled comments of the utilities and NRLDC, latest by 31.08.2021.

- Thereafter, CPRI shall submit its reply on the compiled comments sent by NRPC Sectt, latest by 15.09.2021.

6.13. It was further intimated that base case file (11.07.2018 00:45 hrs) and CPRI's Sep'2020 report were e-mailed to all sub-group members on 10.08.2021 along with the request to submit comments/observations thereon, latest by 24.08.2021.

6.14. In the meeting (187th OCC), forum was apprised that although last date for submission of comments was 24.08.2021, NRPC Sectt. received comments from Himachal Pradesh, Punjab, Rajasthan, Delhi, and NRLDC vide mails dtd. 24.08.2021, 25.08.2021, 26.08.2021, 31.08.2021, and 03.09.2021 respectively. As the received comments were also on the base-case data, a meeting was held on 06.09.2021 among officers of NRPC Sectt, NRLDC and above four states for discussing comments before sending to CPRI. After detailed discussions, following were decided:

A. Himachal Pradesh:

a) It was apprised by NRLDC that generation data of micro IPPs has not been modelled by them in base-case due to their small quantity. Further, Capacitor at Baddi needs to be removed from base-case.

b) HP was requested to submit within 3 days data regarding (11.07.2018 00:45 HRS):

i. Generation break-up along with details of micro IPPs.

ii. Capacitors at 132 kV level.

iii. Nodes of major voltage profile mismatch

iv. Load factor of state (current scenario if data of past is not available)

c) It was decided that after getting above data from HP, base-case will be tuned by NRLDC before sending to CPRI.

B. Punjab:

a) All switched reactors/capacitors to be converted into fixed & net shunt capacitor value in the base-case to be corrected as per Punjab's comment.

b) Punjab was requested to submit low voltage nodes (11.07.2018 00:45 HRS) within 3 days.

c) Based on data from Punjab, initial tuning to be done by NRLDC for Q values of generators. CPRI may be required to do further tuning.

C. Rajasthan:

a) Except low voltage points, power factor needs to be upgraded in the base-case.

b) Rajasthan representative confirmed that most of the capacitors were off during the time for which modelling is done, so lumped capacitor at 132kV needs to be deleted.

c) Rajasthan was requested to submit

i. List of bus-wise capacitors and their status (OFF/ON condition) on 11.07.2018

00:45 HRS.

ii. Voltage profile of generator buses.

D. Delhi:

a) Delhi was requested to submit voltage profile of generator buses.

6.15. It was decided that after receiving data from above four states, NRLDC will tune the basecase initially and will also ensure that regional generators shall not absorb reactive power in the base-case and then base case will be sent to CPRI along with compiled comments.

6.16. In 188th OCC, it was apprised that CPRI vide e-mail dtd. 23.09.2021, requested to send comments at the earliest.

6.17. NRPC Sectt. vide e-mail dtd. 23.09.2021 apprised the CPRI that as per decisions of meeting dtd. 06.09.2021, tuning of base-case file is being done by NRLDC so that no new issue arises in future.

6.18. CPRI vide e-mail dtd. 24.09.2021 has requested that any change in loading & generation profile will be a new base case and this will be a fresh study for new base case. It will require an extensive time and efforts. CPRI has requested to ensure that load/generation profile in tuned PSSE should be same as was given to CPRI for PSSE base 11.7.2018 at 00.45.

6.19. In view of CPRI's request, NRLDC was requested vide e-mail dtd. 24.09.2021 to halt tuning of base-case till further discussion.

6.20. A meeting was held between NRPC Sectt. and NRLDC on 04.10.2021, wherein it was decided that without incorporating corrective comments of states, the report is not acceptable w.r.t drawing any conclusion on requirement of capacitor. Accordingly, NRLDC was requested vide e-mail dtd. 08.10.2021 to complete tuning of base-case at the earliest.

6.21. NRLDC representative informed that tuned base-case will be submitted by NRLDC by 28.10.2021. It was decided that the same will be sent to CPRI for necessary correction in report.

7. Automatic Demand Management System

7.1. 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.

7.2. 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.

7.3. 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.

7.4. 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.

7.5. 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.

7.6. 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

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

7.8. 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.

7.9. In the meeting (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.

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

8.1. The updated status of agenda items is enclosed at **Annexure-A.II.**

9. NR Islanding scheme

9.1. It was apprised that 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 during Apr'21 – Aug'21. The implemented as well as proposed Islanding Schemes of NR have been categorized in two categories and the same was mentioned in agenda also.

9.2. In 187th OCC, it was decided that respective state would submit MIS report before every OCC meeting so that same may be discussed. It was also highlighted that MoP has agreed for PSDF funding for implementation of islanding schemes and states were requested to prepare and submit DFR for the same.

9.3. The current status of Islanding schemes of NR is attached as **Annexure-A.III**.

9.4. A sample DPR on implementation of Islanding scheme for PSDF funding has been already circulated vide email dated 07.10.2021. States can refer sample DPR, if PSDF funding is needed for implementation of Islanding schemes. In case PSDF funding is needed, it is requested to expedite the preparation of DPR on implementation of Islanding. A meeting was also held by Honourable 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.

9.5. In view of the above, states were requested to update the status of DPR, if PSDF funding is needed.

9.6. A Standard Operating Procedure for Islanding schemes has been issued by NPC, CEA which was enclosed as Annexure-A.III of agenda. Utilities were requested to refer and submit SOP for every Islanding scheme in their control area.

9.7. MS, NRPC opined that once COVID situation improves, a team of RPC/NRLDC may visit Delhi SLDC for assessing implementation of Islanding Scheme.

10. Coal Supply Position of Thermal Plants in Northern Region

10.1. In the meeting, NRPC representative apprised the forum about the coal stock position of generating stations in northern region during current month (till 10th October 2021).

11. Declaration of high demand season and low demand season

11.1. In the meeting, NRPC representative apprised the forum that CERC has notified regulatory framework of differential tariff, applicable to thermal generating station, during peak and off-peak hours, during high demand season of three months and low demand season of remaining nine months in Tariff Regulations, 2019. The concerned RLDC has to declare high demand season and low demand season in region after consultation with stakeholders six months before any financial year.

11.2. Further, forum was informed that based on the deliberations in 176th OCC meeting, it was decided that peak season be decided after considering average NR consumption data of all months for previous five years.

11.3. Forum was apprised that in the same manner, energy demand data has been compiled from CEA website (data for Sep'21 has been taken from format-28) and is as under:

Year	May	Jun	Jul	Aug	Sep
2017	33900	33672	36168	36792	34454
2018	35206	37624	38331	38567	33405
2019	37338	41624	41377	39153	38422
2020	30905	37782	41309	39527	40958
2021	32109	39393	45180	44175	36658
Average	**33892**	**38019**	**40473**	**39643**	**36779**

11.4. Forum decided that June-July-August shall be considered as high demand season for NR for FY 2022-23.

12. Proposal to implement additional protection in 220KV lines at NAPS (Agenda by NAPS)

12.1. NAPS vide email dated 06.10.2021 submitted that on 11.08.2021 at 13:25 hrs, both units (NAPS-1 and NAPS-2) had tripped subsequent to isolation of NAPS switchyard from grid due to fault caused by R-phase CVT of 220kV Line-1(Narora-Sambhal). In view of above incident, matter was discussed with designer, NPCIL, Mumbai and additional protection for the 220kV lines has been suggested.

12.2. Representative from NAPS also given a presentation of event occurred on 11.08.2021.

12.3. Forum decided that the matter shall be referred to protection sub-committee group for scrutiny and comment on the proposed scheme.

13. Charging of 400/220 kV Jauljibi substation without 220 kV, 25 MVAR Bus Reactor. (Agenda by NR-3/POWERGRID)

13.1. NR-3/POWERGIRD presented the matter before the forum and apprised that in the meeting of 36th Standing committee on Power System Planning of Northern Region held on 30.10.2015, establishment of 400/220 kV, 7x105 MVA GIS S/S in Jauljibi under ISTS was approved. 400/220 kV S/S in Jauljibi shall be established by:

1. LILO of both circuits of 400 kV Dhauliganga – Bareilly (presently charged at 220 kV) at 400/220 kV, Jauljibi (incoming line from Dhauliganga shall be charged at 220 kV and outgoing to Bareilly shall be charged at 400 kV).
2. 2x63 MVAR switchable line reactors in Bareilly – Jauljibi 400 kV D/C at Jauljibi end
3. 8 no. of 220 kV bays (Pithoragarh-2, Dhauliganga-2, Almora-2, Jauljibi-2)

S. N.	Elements	Status
1	LILO of both circuits of 400 kV Dhauliganga – Bareilly at Jauljibi	Completed
2	2x63 MVAR switchable line reactors in Bareilly – Jauljibi 400 kV D/C at Jauljibi end	Completed
3	Jauljibi – Pithoragarh 220 kV line	Will be completed by Nov'21
4	220 kV Jauljibi – Almora D/c	Under PTCUL Scope
5	220 kV Jauljibi – Jauljibi (PTCUL) D/c	Under PTCUL Scope
6	8 no. of 220 kV bays (Pithoragarh-2, Dhauliganga-2, Almora-2, Jauljivi-2)	Completed

13.2. The existing 400 kV Dhauliganga – Bareilly (charged at 220 kV) is approx. 240 kms with 25 MVAr line reactor at Dhauliganga end. After LILO at Jauljibi, length of Dhauliganga-Jauljibi section becomes approx. 40 kms. Therefore, this 25 MVAR line reactor is to be shifted to 400/220 kV, Jauljibi and shall be used as a Bus reactor at 220 kV after LILO of Dhauliganga – Bareilly at Jauljibi.

13.3. The present status of 400/220 kV Jauljibi S/s is as follows:

The 400/220 kV Jauljibi S/s was scheduled to be charged by Mar'21. POWERGRID approached BRO in the month of Feb'21 to shift 25 MVAR line reactor from Dhauliganga as per approved scheme. However, BRO informed that the road at Dobat (road from Dhauliganga to Jauljibi) washed out due to heavy rain. BRO created a temporary valley bridge at Dobat which had load limitation and was not suitable to transport 25 MVAR reactor (weighing 30 MT) to Jauljibi from NHPC Dhauliganga. Further, BRO confirmed that the road is expected to be repaired in 6 months. Hence, the shifting of reactor could not be taken up and was postponed till the road to Jauljibi is ready. Subsequently, the bridge on Pithoragarh-Tawaghat road washed out on 07-08 July'21 due to flash floods and rolling down of huge stone boulders in the Kulagad Nallah. After that 170 feet DDR Bailey Bridge with capacity of only 24 MT has been launched at same location on 20 Jul'21 (BRO letter attached at Annexure-A.V of agenda). As transportation of 220 kV bus reactor at Jauljibi substation is not possible at present, the reactor shall be shifted and commissioned after construction of the bridge by BRO.

13.4. Hence, permission may be granted to charge the 400/220 kV Jauljibi S/s without 220 kV bus reactor.

13.5. CTU representative informed the forum that based on their study, no significant impact is coming on the system as the reactor is of 25 MVAR only.

13.6. NRLDC reprehensive suggested that a written communication may be sought by POWERGRID from BRO about the expected timeline of the repair of road from Dhauliganga to Jauljibi.

13.7. Subsequently, forum granted permission to charge the 400/220 kV Jauljibi S/s without 220 kV, 25 MVAR bus reactor.

14. Report Preventive maintenance of interface metering CTs and CVTs under STU ownership. (Agenda by ARPL)

14.1 ARPL submitted that recently on 17.08.2021 failure of Y Phase CT (CT blast and fire in bay equipment) of 400 kV APMuL – Hadala line and subsequent line tripping on 17.08.2021 at 18:17 Hrs, was observed. In this regards faulty CT has been replaced after testing of bay equipments. Blast of CT has also damaged the other nearby CTs and CVTs. It took 2 days to restore the line along with cleaning, testing and checking of bay equipments.

14.2 400 kV APMuL – Hadala being critical grid element, after checking of complete healthiness, the line was charged with ALDC / SLDC and WRLDC code on 19/08/2021 at 20:48hrs considering the urgency.

14.3 Ownership of the interface meters (meter, CT and CVT) is of either CTU or STU. STU generally seals all the Secondary TB and JB of CTs, CVTs and meters terminal covers, including the metering panel.

14.4 As per the standard procedure, preventive maintenance of other bay equipment's are performed yearly. Since STU metering CT and CVT are sealed, it's Preventive maintenance such as tan delta, loop test and oil check

was not performed as per the schedule as Sealing involves coordination of DISCOM and STU officials; and may prolong resumption of said line.

14.5 It is suggested that preventive maintenance of metering CT and CVT should be carried out at least once in a year, to prevent corrosion and maloperation in the grid and loss of important elements.

14.6 NRPC representative enquired the ARPL to quote the incident when they have faced such issue of non-cooperation form STU/DISCOM side in NR.

14.7 On this, ARPL representative stated that they are about to approach for same and have no record for such non-cooperation in NR. But, in general, it takes rigorous efforts to follow up with STU/DISCOM for preventive maintenance of interface metering CTs and CVTs.

14.8 Forum decided that ARPL shall send a formal request to STU/DISCOM in this regard and subsequently if required the matter may be taken up in the commercial sub-committee meeting.

15. (Additional agenda) Frequent Tripping of JPL-Dhanonda 400KV line-I & II are tripping frequently

15.1. Mahatma Gandhi Thermal Power Plant (MGTPP) of Jhajjar Power Limited (JPL), Haryana has submitted that JPL to Dhanonda 400KV line-I & II are tripping frequently due to PLCC Channel faults since long i.e., from April 2020. In addition to this, the PLCC speech channels of Dhanonda line-I & II are not in service at present and the hot line communication between JPL and Dhanonda substation is not through.

15.2. The matter was taken up in 184th OCC meeting also, but there is no resolution from HVPN Dhanonda end till date.

15.3. At present, PLCC channel-2 of both the lines i.e., Dhanonda line-I & II are in bypass condition and lines are running with one PLCC channel only. Now in the event of failure of only healthy PLCC channel-1, it may lead to switching off of 400kV line permanently, as line can't be taken in service with PLCC channel. This situation may hamper power evacuation from our JPL plant. With non-working of speech channels, communication in emergency condition will not be available.

15.4. In the 184th OCC meeting, forum decided that Generation and Transmission utility may co-ordinate for cross-checking of protection settings.

15.5. In the meeting (188th OCC), HVPN representative informed that they have procured the PLCC card and the same shall be replaced. Therefore, this problem will automatically get solved within a month.

16. (Additional agenda) Tanda-Basti line (220 KV) tripping on unbalanced loading (Agenda by NTPC)

16.1. NRPC representative apprised that in 186th OCC meeting, UP representative stated that there is a Railway TSS in Govindgarh and there are 3 lines feeding it. When, other two lines are in open situation, and any train passes, then due

to unbalanced load, Tanda-Basti line trips. It has never tripped due to heavy load/ peak load. He also added that 400 kV Sultanpur-Basti is operational. Gonda line LILO will be done from Basti. 500 MVA transformer is under commissioning at Basti and load will come latest by Oct, 2021. Then, this issue of tripping will automatically get resolved.

16.2. In the 188th OCC meeting, NTPC representative informed that instances of 220KV Tanda-Basti line tripping on Broken Conductor Protection occurred in recent past. Each time it is observed that there is no actual open conductor fault, instead there is a large, unbalanced loading pattern among 3 phases. Hence, relay sensed open conductor protection operating condition (Negative phase sequence component of current above the limit w.r.t. Positive sequence component) and giving trip command, causing 3 pole tripping of breaker at Tanda end. The details are: -

Sr.No.	Date	Time	Current	Setting
1.	01Oct.2020	15:23:00		I2/I1>0.2,20sec Time delay
2.	17Oct.2020	15:09:00		I2/I1>0.2,20sec Time delay
3.	25June2021	07:58:44	Ir=258.01,Iy=246.18,Ib=198.85	I2/I1>0.2,20sec Time delay
4.	01Aug.2021	16:51:20	Ir=197.65,Iy=152.78,Ib=116.61	I2/I1>0.2,20sec Time delay
5.	22Sep.2021	06:29:00	Ir =277A , Iy= 234 A & Ib=188 A	I2/I1>0.2,20sec Time delay

16.3. UP representative informed that commissioning of the system as discussed in 186th OCC will come latest by 30.11.2021.

17. (Additional agenda) Deemed availability of outage of Transmission lines due to tripping caused by kite thread / flying (Agenda by POWERGRID)

17.1. NRPC representative stated that the agenda was discussed in 187th OCC.

17.2. In 187th OCC meeting, MS, NRPC stated that in past under CERC performance regulations, those incidents which were beyond the control of licensee have been considered. On similar lines, he suggested that deemed availability may be given for 2 hours each for 2 trippings per month for 4 months in a year, subject to proper documentation and verification. NRLDC representative suggested that time stamping on photographs may be ensured for documentary evidence. The forum agreed with the aforementioned suggestions.

17.3. This time, POWERGIRD has requested vide email dtd 13.10.2021 to review the decisions of 187th OCC particularly for POWERGRID.

17.4. POWERGRID has submitted that conformity of the house to consider line tripping associated by kite thread under “Forced Majeure” and suggestions by MS-NRPC are certainly helpful in view of the problem faced/ factual position presented by many transmission licensees.

17.5. However, it may be reviewed for more practicality and smooth implementation in consideration of following;

- POWERGRID having largest network of >330 lines in the region, mostly passing through close proximity of capital and other big cities is more prone to face such incidents.
- There had been around 39 nos. confirmed trippings of POWERGRID lines, spread in nine months of last one year from Oct'20 to Sept'21.

17.6. Being forced majeure event, any such tripping due to Kite thread should be considered as per actual, subject to submission of supporting data/ picture as agreed, without restricting it in few months. Restoration time in most of the cases had been around two hours and may be considered accordingly.

17.7. MS, NRPC stated that considering the large network of POWERGRID, decisions of 187th OCC may be partially modified and now 24 trippings per year may be considered deemed available for POWERGRID. For other transmission licensees, it is same as decided in 187th OCC i.e., 2 hours each for 2 trippings per month for 4 months in a year.

18. (Additional agenda) Streamlining of RLDC FTC Procedure and Software Modification (Agenda by POWERGRID)

18.1. NRPC representative apprised the forum that the matter was discussed in 187th OCC.

18.2. In 187th OCC meeting, in-charge, NRLDC stated that FTC formalities have been developed for streamlined and uniform procedure across all regions. Documents over e-mail or any other medium may not be accepted as there is already a well-established system.

18.3. POWERGRID requested that documents uploaded by them shall have time tagging for reference. NRLDC consented for the same.

18.4. Now, POWERGIRD has requested vide email dtd 13.10.2021 to review the decisions of 187th OCC and has submitted that all FTC data required for internal processing of NRLDC shall be submitted in Format B1-B4 along with undertaking as in Format B-5. The CEA safety Certificate may be submitted subsequently for final charging clearance from NRLDC.

18.5. POWERGRID representative stated that CEA certificates like CEA safety clearance, and PTCC clearance takes more time for issuance and these certificates are not useful for NRLDC in task of scrutinizing technical details. He, requested that these certificates may be permitted to submit in later stage for sake of saving time in FTC clearance.

18.6. NRLDC representative did not agree with POWEGRID's request.

18.7. MS, NRPC opined that CEA certificates like CEA safety clearance, and PTCC clearance etc. may be allowed to be submitted in later stage.

19. Grid Highlights for September 2021

NRLDC representative presented the major grid highlights for September 2021 as shown below:

- In Sep'21, the Maximum energy consumption of Northern Region was 1388 Mus on 6th Sep'21 and it was 8 % lower than Sep' 2020 (1507 Mus 18th Sep'20)
- In Sep'21, the Average energy consumption per day of Northern Region was 1211.88 Mus and it was 11.04 % lower than Sep'20 (1362.34 Mus per day)
- In Sep'21, the Maximum Demand met of Northern Region was 63559 MW met on 6th Sep'21 @ 21:00 hours (Based on data submitted by Constituents) as compared to 67807 MW met on 18th Sep'20 @ 23:00 hours
- Northern Region all time high value recorded in Sep' 21:

Energy Generation	All Time High Record		Previous Record (upto August-21)	
	Value (MU)	Achieved on	Value (MU)	Achieved on
Solar Generation	**60.49**	**16.09.21**	**60.36**	**17.08.21**

- Total average per day energy production by Northern region was 1022.43 Mus in the month of Sep'21 in comparison of 1050.23 Mus in Sep'21. The fuel wise share of generation is shown below.

NRLDC representative stated that in Sep'21, Frequency remained within IEGC band for 77.40% of the time. Frequency touched a low of 49.50 Hz on 24th Sep-21. Emergent contingency events during such times such as large generation outage, could have resulted in further drop in frequency and therefore, overdrawals below 49.90 Hz must be controlled quickly in order to keep system secure.

Details of the issues covered along with list of important first time charged elements during Sep'21 is attached as **Annexure-B.I.**

During this month some of the NR states such as Rajasthan also had overdrawal contributing to low frequency operation. NRLDC has been continuously requesting Rajasthan to maintain its drawl within schedule during low frequency instances and also take necessary measures for revival of intrastate generating units.

In the meeting, Rajasthan SLDC informed that due to coal shortage issue, there was difficulty in meeting demand during real-time. SLDC tried to ensure minimal overdrawl even then the state had shortage during several time blocks.

Following actions were discussed during special FOLD meeting held on 06.10.2021 and were reiterated in the OCC meeting for maintaining grid security:

(i) Monitoring of state Area Control Error (ACE) and taking corrective measures to keep ACE close to zero

(ii) Higher DC by coal-fired stations in morning and evening peak hours (instead of flat DC RTC)

(iii) Peaking support from hydro generation and revival of hydro units under outage

(iv) Revival of thermal units under forced outage

(v) Revival of GT/ST under planned/forced outage

(vi) Intra-state units in cold reserve to be brought on bar

(vii) Intra-state gas plants operation (especially in evening peak hours)

(viii) Review of planned generation outages for the Oct/Nov months

(ix) Advance measures for demand management to be taken to reduce over reliance in market because large deviations if bids do not clear are threat to grid security. Planned load management measures may be taken to avoid over-drawal and low frequency operation

(x) Monitoring and harnessing of captive generation

(xi) No under injection by the generators from schedule

(xii) Proper reporting of unit status and coal stock position to RLDC/NLDC/CEA

(xiii) Reason of the unit outage must be reviewed (Less demand/ No schedule/ commercial reason etc.)

(xiv) Healthiness of all defense mechanisms like under frequency relays, under voltage relays, inter trip schemes etc. to be ensured for safety of the grid

NRLDC representative stated that utilities have been requested in last several OCC meetings and also vide NRLDC letters to update list of radial feeders which can be opened on the directions of NRLDC/SLDC to regulate the demand. List of such radial feeders was once again attached as Annexure-III of agenda. *Utilities from which feedback is yet to be received were once again requested to provide update on the same.*

The opening of feeders shall be required in case of threat to grid security and non-adherence to RLDC instructions to manage over drawl by SLDCs/ DISCOMs. SLDC/Transmission Licensee may be directed (As per Clause 5.4.2 of IEGC) to open these radial feeders on the direction of NRLDC/SLDCs. All SLDCs/ISTS licensees/STUs need to adhere to instructions of NRLDC/ SLDC as the case maybe. All efforts would be taken to open the lines on rotational basis.

Telemetry is to be ensured for all such feeders for monitoring in real time by SLDC/ NRLDC. Display has been created at NRLDC for monitoring of status and load of these radial feeders at NRLDC control room. SLDCs are also advised to develop such displays in their respective control rooms and monitor the loading of these radial feeders. Assistance if required may be taken from NRLDC.

NR Constituents were once again requested to take initiatives to minimize sudden load changeovers at hourly boundaries and also monitor performance of generators under their jurisdiction when the frequency is having large excursions.

20. Action Plan for Winter Preparedness 2021-22

The challenges expected and actions to be taken by utilities for ensuring safe and secure grid operation during winter months were discussed in 187th OCC meeting.

a*) Load generation balance:*

- In house or use third party Software tools for precision of load forecasting & generation planning on daily, weekly and monthly basis with hourly granularity for daily forecast, which may be subsequently improved to block-wise forecasting. Forecast of demand ramp has also become important ***(Action by SLDCs****)*
- ISGS hydro stations are already being scheduled by NRLDC to provide maximum support and requisite ramp rate during peak hours, keeping in view their forecasted daily energy availability as well as mechanical availability. SLDCs were also requested to optimally schedule hydro and gas generation to make sure that demand as well as ramp requirements are safely met ***(Action by NRLDC/ SLDCs)***.
- Minimize generation to technical minimum as per IEGC guidelines /CERC directions during low demand (***Action by ISGS, intrastate generators, NRLDC, SLDCs***).
- During winter season, transmission lines emanating from hydro generating stations are opened on High voltage during night hours and are closed before morning peak hours (next day). It has been observed that there used to be considerable delay in charging the lines after issuance of code (in the morning hours). This causes power evacuation constraints in the hydro generation pockets and over-loading of the remaining transmission lines. (***Action by ISTS licensees/ STUs***)
- Hydro generators to ensure & declare their maximum DC particularly during non-solar period, to ensure better management of power portfolio by the beneficiaries. (Action by ISGS, intrastate generators)

b) High voltage management:

- Ensuring disconnection of capacitors (***Action by SLDCs/ STUs/DISCOMs***). ***Confirmation to be provided by respective SLDCs.***
- Ensuring healthiness of all commissioned reactors in the system (***Action by ISTS licensees/ STUs***)
- Monitoring of reactive power of generators and exchange of reactive power with ISTS through SCADA displays ***(Action by SLDCs)***.
- Ensuring reactive power support (absorption) from generating stations by operating units upto their capability limits. (***Action by ISGS, intrastate generators, NRLDC, SLDCs***). **Discussed in detail in next agenda.**
- Synchronous condenser operation especially of hydro units during night hours for dynamic voltage support. Some of the generators have already been tested successfully (Tehri, Chamera, Pong etc.) in synchronous condenser mode and shall be available for condenser mode of operation as and when required. In 47th TCC and 49th NRPC meeting following was agreed:
    - Delhi SLDC to update on the feasibility of operating its old gas stations in condenser mode.
    - Separate meeting with IPPs and state generators to explore possibility of synchronous condenser operation.

- Punjab suggested to explore possibility of utilizing old retired thermal plants as synchronous condenser.

- Chamera, Pong, Larji were also requested to test their machines for this season so that synchronous condenser facility could be utilized during winter months.
    - HP SLDC informed that in case of Larji, OEM visit is awaited.
- Delhi SLDC stated that review petition has been filed in DERC and govt. approval is pending for Delhi gas stations.
- Separate meeting would be called in November with IPPs and state generators to explore possibility of synchronous condenser operation.
- 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 September 2021, it was proposed to carry out tap change exercise at following 400/220kV nodes:

  Increase by 2 Steps

  POWERGRID: Bhiwadi, Sambha, Srinagar

  DTL: Bamnauli

  HVPNL: Nuhiyawali, Daultabad

  UPPTCL: Muradnagar

  Decrease by 2 Steps

  POWERGRID: Mainpuri, Kaithal

  UPPTCL: Sultanpur

  Scatter plots for these stations were attached as **Annexure-IV of agenda.**

  OCC approved the tap change exercise at these stations.

  Haryana and UP SLDC requested that tap positions may be checked and optimized at 400/220kV Panchkula (PG) and Rewa Road.

  SLDCs were also requested to provide the tap change exercise carried out by them or proposed to be carried out before winter. ***(Action by SLDCs)***.
- Opening of EHV lines based on expected voltage reduction and also considering security & reliability of system. This exercise to be done at 400kV and above voltage level by NRLDC and 220kV and below voltage level by SLDCs, but only after utilizing all other resources such as switching on bus reactors (including line reactors that can be used as bus reactor), switching off capacitors at lower voltage levels, tap optimization, MVAR absorption by generators etc. ***(Action by NRLDC/ SLDCs)***.
- All utilities were requested to go through the reactive power document and report if any incorrect or missing information is noticed. The document is being utilized in real-time operation by control room operators at NRLDC, and thus it is necessary that list of all reactors where such provision is available are updated in the document. It was also agreed that additional manpower if required, may be placed at critical substations (***Action by ISTS licensees/ STUs***).

c) EHV line trip during fog/Smog

Utilities were requested to ensure:

- Priority wise cleaning & replacement of damaged insulators.
- Monitor progress of cleaning and replacement of porcelain insulator with polymer insulator and furnish updated status to NRPC/NRLDC. (***Action by ISTS licensees/ STUs***).

As agreed in 187th OCC meeting, utilities were once again requested to share action plan and measures taken by them for carrying out pre-winter maintenance activities and other actions agreed in 187th OCC meeting. Till date no response has been received from the utilities.

NRLDC representative stated that even after actions being taken by operators in real-time, high voltages have been observed in the months of October. Snapshot showing high voltages at different stations was presented in the meeting. All utilities were asked to implement the actions as discussed in 187th and 188th OCC meeting to ensure smooth and secure operation during winter 2021-22.

21. MVAR support from generators

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

For some of the generators it is seen that there is inadequate reactive power absorption based on their capability curve especially during night hours. The performance of generators in absorption of reactive power for last 30 days (06 Sep 2021 – 06 Oct 2021) as shown below was discussed in the meeting:

S. No.	Station	Capacity	Fuel Type	Geographical location	MVAR performance (-) Absorption (+) Generation	Voltage absorption above (in KV)
1	Dadri NTPC	980	Thermal	Delhi-NCR	-300 to 200	415
2	Singrauli NTPC	2000	Thermal	UP	-250 to 50	402
3	Rihand NTPC	2000	Thermal	UP	-250 to 50	402
4	Kalisindh RS	1200	Thermal	Rajasthan	-250 to 100	Voltage data static mostly
5	Rosa UP	1200	Thermal	UP	-100 to 300	
6	Anpara C UP	1200	Thermal	UP	-100 to 150	762
7	TalwandiSaboo	1980	Thermal	Punjab	-300 to 300	415
8	Kawai RS	1320	Thermal	Rajasthan	-250 to 200	405
9	Anpara TPS	1630	Thermal	UP	-100 to 150	408
10	IGSTPP Jhajjar	1980	Thermal	Haryana	-250 to 300	412
11	Tanda	1320	Thermal	UP	-100 to 200	410
12	Rajpura (NPL)	1400	Thermal	Punjab	-100 to 400 (seems MVAR data sign reversal)	410
13	Khedar	1200	Thermal	Haryana	-150 to 100	410

S. No.	Station	Capacity	Fuel Type	Geographical location	MVAR performance (-) Absorption (+) Generation	Voltage absorption above (in KV)
14	MGTPS	1320	Thermal	Haryana	-300 to 50	407
15	Bawana	1000	Thermal	Rajasthan	-200 to 200	410
16	Bara PPGCL	1320	Thermal	UP	-130 to 50	410
17	Suratgarh TPS		Thermal	Rajasthan	-100 to 50 (seems MVAR data sign reversal)	420

Reactive power performance analysis of intrastate generators was shared by UP SLDC.

As on Dated 20.10.2021			
Sr. No.	Generating Station	Unit No.	MVAR VS V GRAPH STATUS
1	Anpara-A	(Unit1#210)	Not satisfactory needs improvement
2		Unit2#210	Not satisfactory needs improvement
3		Unit3 #210	Not satisfactory needs improvement
4	Anpara-B	(Unit4#500)	Satisfactory
5		(Unit5#500)	Satisfactory
6	ANPARA-C	(Unit1# 600)	Data is not healthy
7		(Unit2# 600)	Data is not healthy
8	Anpara-D	(Unit6#500)	Not satisfactory needs improvement
9		(Unit7#500)	Not satisfactory needs improvement
10	Obra-B	(Unit9#200)	Satisfactory but need improvement
11		(Unit10#200)	Satisfactory but need improvement
12		(Unit11#200)	Satisfactory but need improvement
13		(Unit12#200)	Satisfactory but need improvement
14		(Unit13#200)	Under Shutdown
15	Parichha-B	(Unit3#210)	
16		(Unit4#210)	
17	Parichha-C	(Unit5#250)	Satisfactory
18		(Unit6#250)	Satisfactory
19	Harduaganj	(Unit7#105)	Data is not healthy
20		(Unit8#250)	Satisfactory
21		(Unit9#250)	Satisfactory
22	ROSA A TPS	Unit1 #300	Data is not healthy
23		Unit2 #300	Data is not healthy
24	ROSA B TPS	Unit3 #300	Data is not healthy
25		Unit4 #300	Data is not healthy
26	LALITPUR TPS	(Unit 1 # 660)	Not satisfactory needs improvement
27		(Unit 2 # 660)	Not satisfactory needs improvement
28		(Unit 3 # 660)	Not satisfactory needs improvement
29	Meja Urja Nigam Pvt. Ltd.	Unit-1 #660	Not satisfactory needs improvement
30		Unit-2 #660	Satisfactory but need improvement
31	Bara	(Unit-1# 660)	Satisfactory but need improvement
32		(Unit-2 # 660)	Satisfactory but need improvement
33		(Unit-3 # 660)	Satisfactory but need improvement

Other SLDCs are also requested to analyse MVAR performance of generators under their control area and instruct them accordingly. Generally, generating stations in Punjab, Haryana and Delhi are required to absorb MVAR in winter months, whereas some stations in Rajasthan such as Chhabra, Kawai, Kalisindh etc. are required to generate MVAR to minimise low voltages in Hindaun and Alwar areas.

NRLDC representative asked Rajasthan SLDC to explore possibility of running generation at Dholpur TPS and continuously monitor reactive power performance of nearby generators to minimise low voltages at Hindaun and Alwar.

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

In the meeting, it was discussed that capability of solar plant-based inverters can be used to provide voltage support during critical system needs on continuous basis and during night the entire inverter capacity can be used for reactive power support.

It has already been deliberated in OCC meetings that PV inverters generally have three modes of operation selectable by the plant:

1. Voltage control mode in which voltage of the reference point is monitored by inverters/PPC and reactive power drawl/ injection is varied accordingly w.r.t a voltage set point.
2. Reactive Power or Q-control mode in which inverter supplies/absorbs a fixed amount of reactive power from the grid.
3. Power Factor control mode is one in which inverter operates within a defined power factor range.

S. No.	Solar Plant/ Developer	Capacity	MVAR performance (-) Absorption (+) Generation	Voltage absorption above (in KV)
1	SauryaUrjaBhadla	500	-80 to 15	Generally, most of the solar plants are drawing MVAR from the grid. Some plants such as Tata (Bhadla), Mahoba (Bhadla) and Renew (Bikaner) are drawing minimal MVAR during peak solar generation. Most of the plants are generally operating in p.f. control mode with p.f. of (0.98-1)
2	Adani Bhadla	250	-40 to 10	
3	Tata Power Bhadla	300	-20 to 40	
4	Acme Bhadla	250	-50 to 5	
5	EsselBhadla	300	-120 to 20	
6	Mahindra Bhadla	250	-60 to 0	
7	MahobaBhadla	300	-80 to 20	

It was deliberated that from data, it is being observed that the reactive power absorption of solar plant is increasing with increase in generated active power. Though the plant is keeping up with the recommended CEA connectivity standards by running within 0.95 limits but the effect of this plant along with other operating in same manner i.e. at lagging

pf, is absorption of reactive power at POI proportional to real power output resulting in reduction of voltage to critically low levels during peak solar generation.

In voltage control mode solar plant dynamically supports the grid by injecting/absorbing reactive power based on voltage. During peak solar generation period, the plants inject VARs to the POI to boost the dip in voltage. In situations where voltage control operation is not possible then solar developer may be asked to provide Shunt compensation devices so that they don't have to depend on grid for reactive power support.

With a high RE addition target set by India, huge quantum of Solar and Wind power parks are getting commissioned. RE generation at ISTS system is also being integrated at fast pace. Consequently, voltage excursions are being experienced at RE pooling stations during day and night hours on daily basis. A typical day voltage profile of Bhadla (PG) (Aug'2021) was shown in the meeting. From the plots, it may be seen that high voltages are being experienced during night hours (No solar generation) at RE and nearby substations. These high voltages are despite utilising the available static reactive power support such as bus reactor and line reactors. Further EHV lines are being opened to control high voltages, which compromises reliability /security, high duty cycles on CBs causing failures especially in GIS SS etc.

Most of the inverters are designed with capability to absorb reactive power using a feature known as night mode. A typical invertor has a reactive power capacity of 33% capacity of active power capacity is available for absorption during night on most of the plants. Further the recently commissioned inverters are having a reactive capacity of around 70-75% of active power capacity.

NRLDC representative stated that to ascertain the technical and commercial aspects of operating in night mode of operation and its impact on the 400kV Grid, a test/trail run may be performed for any NR RE plants. Such test has already been performed in Southern region in coordination of SPRC/SRLDC and lots of RE plants at Southern region has already participated and contributed for Voltage support as per grid requirement. Further understanding is required on aspect such as steps possible for controlling Q in night mode, Technical feasibility of operating for 4 to 5 hours during night, tap change requirement if any etc.

A test/trail may be planned and performed and observation may be shared to OCC forum, after test/trail, all the feedback and its technical and financial aspects may be reviewed and studied at NRPC/NRLDC level. This would support the grid during winter months to reduce the issue to high voltage up to some extent.

Outline for the exercise and possible steps for conducting the exercise were presented in 188th OCC meeting. It was also informed by NRLDC representative that a pilot project has been carried out by SRLDC/SRPC and a report is being prepared in this regard and the same is expected in a week's time. It was decided that sub-group constituted at NRPC level may take up these issues during their deliberations. SE (O), NRPC stated that sub group meeting would be called in November 2021 before next OCC meeting to discuss RE related issues and the report prepared by SRPC/SRLDC shall also be referred.

22. TTC/ATC of state control areas for winter 2021-22

NRLDC representative stated that in 187th OCC meeting, it was discussed that most of the NR states except Uttarakhand, J&K U/T and Ladakh U/T and Chandigarh are sharing basecase and ATC/TTC assessment with NRLDC. SLDCs were requested to go through the tentative ATC/TTC limits for October 2021 (Annexure-III of 187 OCC agenda) and provide comments. However, comments have been received only from HP so far. Accordingly, these limits are assumed confirmed and uploaded on NLDC website.

In the meeting, SLDCs were also requested to upload the limits for winter 2021-22 in their respective websites.

State	Available Transfer Capability (ATC) (MW) (TTC-RM)	Limiting Constraints	Remarks
Punjab	**7100 (Solar)** **7400 (non-solar)**	N-1 contingency of 400/220kV Rajpura, Nakodar, Moga and Ludhiana ICTs. 400kV Bus-split work at 765/400/220kV Mogahas been completed and it is likely to increase ATC/TTC of Punjab state control area by 300MW.	Punjab SLDC was requested to ensure sufficient intrastate generation on bar during winter months, which would help in providing the required MVAR absorption to limit high voltages during winter months
UP	**13200**	N-1 contingency of 400/220kV Sohawal (PG), Gorakhpur (UP), Sarnath, Obra and Agra(PG) ICTs, 400/132kV Mau ICTs	SPS for Sohawal and Lucknow to be expedited. ***It was decided that UP STU will request POWERGRID to get quotation for implementation of SPS at these stations.***
Rajasthan	**5900**	N-1 contingency of 400/220kV Chittorgarh, Merta, Jodhpur ICTs, Bhilwara and Ajmer ICTs	Rajasthan representative informed that latest ATC/TTC limits have been shared on 22.10.2021 with NRLDC for winter 2021-22. Rajasthan SLDC was requested to take up the matter for implementation of SPS at Jodhpur and other stations with STU and ensure loading below N-1 contingency limit at constrained 400/220kV ICTs.
Haryana	**7900**	N-1 contingency of 400/220kV ICTs at Deepalpur, Kurukshetra(PG), Sonepat(PG), Panipat	Haryana SLDC was once again requested to expedite implementation of SPS at400/220kV Deepalpur and Kurukshetra (PG) to enhance their ATC/TTC limits at the earliest
Delhi	**6500**	N-1 contingency of 400/220kV Mundka and Bamnauli ICTs.	ATC is not being uploaded in website, only violation of ATC is being shown. Delhi SLDC to take up implementation of SPS at Mundkaand Bamnoli to save supercritical loads under N-1 contingency of one ICT with STU.***Delhi STU informed***

State	Available Transfer Capability (ATC) (MW) (TTC-RM)	Limiting Constraints	Remarks
			SPS implementation would be completed before summer 2021.
J&K and Ladakh	**1550**	N-1 contingency of 400/220kV Amargarh ICTs	Not assessing its ATC
HP	**1100**	N-1 contingency of 400/220kV Nallagarh ICTs and 220kV Nallagarh-Uperanangal D/C	HP started its ATC assessment from previous two months in consultation with NRLDC
Uttarakhand	**1500**	N-1 contingency of 400/220kV Dehradun and Kashipur ICTs	Not assessing its ATC

Uttarakhand and 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.Uttarakhand SLDC has shared few changes in basecase which are being carried out at NRLDC end and would be shared with SLDC. However, response from J&K is still awaited.

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 Uttarakhand, J&K and Delhi (real-time violation available) are uploading ATC/TTC limits on their websites.

J&K and Ladakh U/Ts and Uttarakhand 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.

Plots depicting N-1 non-compliance at several 400/220kV ICTs as presented in the meeting are attached as **Annexure-VI of agenda**. It was requested that SLDCs may ensure that loading of ICTs and lines are below their N-1 contingency limits.

As discussed during last meeting, since from October, demand of most of the NR states starts changing, it was requested that the revised ATC/TTC limits for winter 2021 along with anticipated generation scenario may be timely shared with NRLDC. It is also requested that net scheduled power requested by states is within their ATC limits.

23. Grid operation related issues

(i) Long outage of transmission elements/ generating units

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

All utilities were requested to make it a practice to update status of elements under long outage in the NRLDC outage software portal. Utilities are requested to take necessary actions to revive elements which are under long outage especially reactive power devices to control high voltages during winter.

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

In line with the decisions of previous meetings, 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. However, no new information was received in the meeting.

(iii) Switching operation of transmission elements without NRLDC code

NRLDC representative stated that as has already been deliberated in previous meetings (175th, 178th and 181st OCC) that switching operation without NRLDC code should be avoided. This was with reference to the unilateral switching operation of 400kV Allahabad- Fatehpur Ckt 2 on 22.09.2021 by POWERGRID NR-III without NRLDC coordination. This is a gross violation of IEGC clauses 5.2 (b) and (c).

Sr. No.	Name of transmission element	Outage duration			
		Date	From		To
1	400 kV Allahabad-Fatehpur-2	22.09.2021	20:27 Hrs	to	20:28 Hrs
		22.09.2021	20:31 Hrs	to	20:43 Hrs

POWERGRID was asked to look into the matter and advise the concerned not to repeat this in future in the interest of grid security and instruct them to follow grid discipline and adhere to the IEGC and CERC regulations at all times. NRLDC further advised POWERGRID representative to issue a circular in this regard to sensitize all the executives/supervisors working at substations. The copy of the same may be shared with NRLDC/NRPC POWERGRID representative agreed for the same.

(iv) Delay in charging of elements under SUO-MOTO outages

NRLDC representative stated that some of the lines were manually opened due to high voltage under SUO-MOTO instruction of NRLDC. The lines were charged after a delay of more than 30 minutes after issuance of charging code.As per approved NR Operating procedure, operation code issued by NRLDC for switching shall become invalid if the switching is not completed within half an hour of issuance of code. It is requested to avoid such delay in charging of elements in the interest of safety and security of grid.

POWERGRID representative stated that generally the time exceeds 30 minutes only in case line reactor which was under service as bus reactor is to be taken in service along with line. However, POWERGRID would try and ensure that the switching operation is carried out within 30 minutes of issuance of code. OCC asked all utilities to avoid delay in charging of transmission elements.

24. Calculation of Drawal points based on SLDC end data

As discussed in the 6thTeST meeting all SLDCs shall maintain its own drawal calculation (alternate calculation based on the SLDC drawal points) for proper monitoring and SLDC also shall be responsible for calculation of its own drawl based on their drawal points at their respective feeders/ICTS. SLDC shall use its own calculated value of monitoring real-time drawal from the grid along with ISTS drawal to ensure the correctness and corrective measures shall be taken accordingly.

UP and Delhi are using their end calculation as primary calculation for monitoring of drawal whereas Rajasthan is entirely dependent on STU data.

However, **Punjab, Haryana, Jammu and Kashmir, Uttarakhand** are dependent on RLDC end drawal values. All concerned are requested to please compute drawal values at SLDC end also, so that same can be verified with NRLDC end value and any discrepancy can be rectified immediately.

MS NRPC expressed concern and asked all the states which are only dependent on RLDC end data to take necessary actions and compute drawl values at SLDC end also. It was also suggested that the agenda be continued in OCC meeting till resolution of issue by all states.

25. Non-availability of data from PSTCL Stations

The matter of non-availability of real-time data was discussed in special meeting with PSTCL held on 05.02.2021, where in matter of non-availability of data from PSTCL stations were discussed. It is to inform data from 55 stations of PSTCL is yet to be integrated. During the meeting PSTCL informed that 9 stations data would be integrated by March 2021 and remaining stations would be integrated by December 2021.Minutes of the meeting is attached in Annex-VIII.a of agenda. NRLDC letter in this regard is also attached as Annexure-VIII.b of agenda.

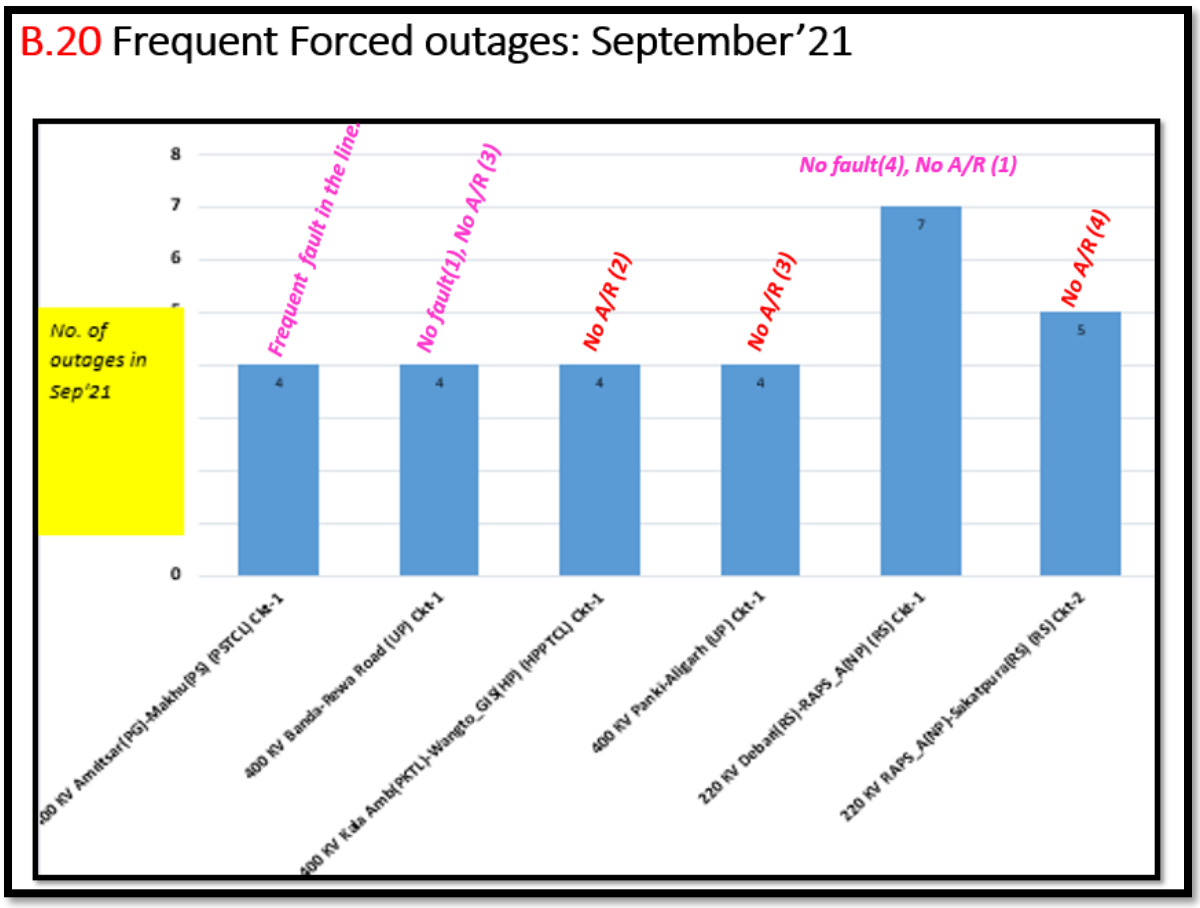
NRLDC representative stated that till date there is no improvement in this regard. It may be mentioned some of the critical interface data is also integrated. PSTCL was requested to please expedite the process of RTU Integration.

Punjab SLDC representative stated that RTU integration work is in progress. 3 out of 9 RTUs which were proposed for integration have been integrated as on date. Work is under progress for integration of remaining RTUs and expected for completion by Dec 2021. OCC noted the same.

26. Frequent forced outages of transmission elements in the month of Sep'21:

The following transmission elements were frequently under forced outages during the month of **Sep'21**:

Sl. No.	Element Name	No. of forced outages	Utility/SLDC
1	400 KV Amritsar(PG)-Makhu(PS) (PSTCL) Ckt-1	4	Punjab/POWERGRID
2	400 KV Banda-Rewa Road (UP) Ckt-1	4	UP
3	400 KV Kala Amb(PKTL)-Wangto_GIS(HP) (HPPTCL) Ckt-1	4	HP/PKTL
4	400 KV Panki-Aligarh (UP) Ckt-1	4	UP
5	220 KV Debari(RS)-RAPPS_A(NP) (RS) Ckt-1	7	NPCIL/Rajasthan
6	220 KV RAPPSA(NP)-Sakatpura(RS) (RS) Ckt-2	5	NPCIL/Rajasthan



The complete details are attached at **Annexure-B.II of the Agenda.**

Discussion during the meeting:

- **400 KV Amritsar(PG)-Makhu(PS) (PSTCL) Ckt-1:** *Punjab representative informed that multiple times tripping occurred in this line due to insulator disc flashover on different towers. He further informed that disc cleaning work will be carried out in coming lean season of November and December month to avoid such tripping in future.*
- **400 KV Banda-Rewa Road (UP) Ckt-1:** *UPPTCL representative informed that there is some problem in PLCC at Rewa(UP) end due to which A/R did not operate during tripping of this line and they are working on this and the same is expected to be resolved soon.*
- **400 KV Panki-Aligarh (UP) Ckt-1:** *UPPTCL representative informed that during tripping on 11th September, A/R operated from Aligarh end and pole discrepancy occurred at Panki end. He further informed that in other three trippings A/R operated but line tripped on persistent fault.*
- **220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1:** *Rajasthan representative informed that there is clearance issue in some section of the line due to which frequent fault is occurring in the line. He further informed that A/R was in off condition in this line due to connection of RAPS generation. NRLDC representative suggested to ensure healthiness/ in service of A/R in all 220 kV and above transmission lines in compliance to CEA Grid Standard. Rajasthan representative agreed for the same.*

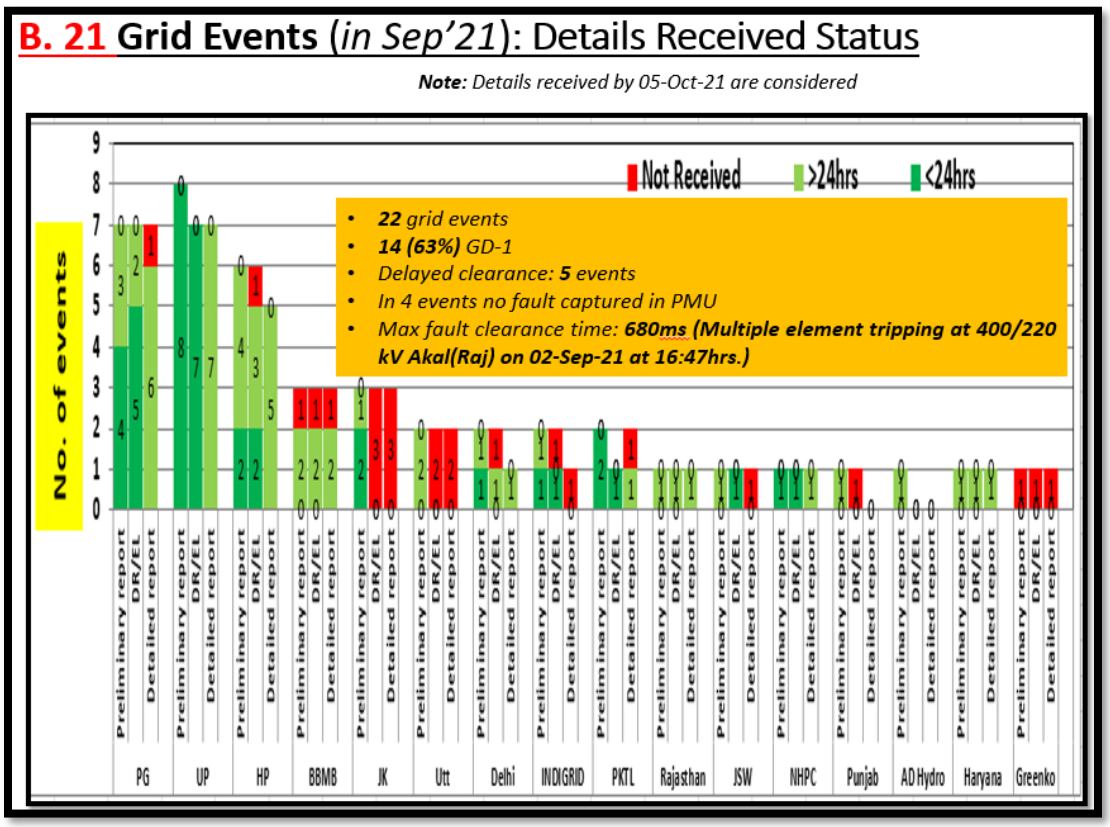
- **220 KV RAPSA(NP)-Sakatpura(RS) (RS) Ckt-2:** *Rajasthan representative informed that there is clearance issue in some section of the line due to which frequent fault is occurring in the line. He further informed that A/R was in off condition in this line due to connection of RAPS generation. NRLDC representative suggested to ensure healthiness/ in service of A/R in all 220 kV and above transmission lines in compliance to CEA Grid Standard. Rajasthan representative agreed for the same*

NRLDC representative emphasized that A/R (auto reclosure) issue was found in many 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 Standard. It was 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 and which further reduces the reliability of the grid. All the utilities shall endeavour 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 regard**.

27. Multiple elements tripping events in Northern region in the month of Sep'21

A total of **22** grid events occurred in the month of Sep'21 of which**14** are of GD-1 category. The preliminary report of all the events have been issued from NRLDC. A list of all these events along with the status of details received by 05-October-2021 is attached at **Annexure-B.III of the Agenda.**



Further, despite persistent discussions/follow-up in various OCC/PCC meetings, the compliance of the regulations is still much below the desired level.

Maximum Fault Duration is **680ms** in the event of multiple element tripping at400/220 kV Akal (Raj) on 02-Sep-21 at 16:47hrs.

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **5** events out of **22** grid events occurred in the month. In 4number of events, fault signature couldn't be captured from PMU data.

NRLDC representative stated that in the event of tripping at 400/220 kV Akal (Raj) on 02-Sep-21 at 16:47hrs delayed clearance of around 680ms is observed in the system. He further informed that as per report received from SLDC Rajasthan Bus bar protection was out of service at 400/220 kV Akal (Raj) and lines tripped in Zone 4 from other end. It was further sensitized that 400/220 kV Akal (Raj) is an important substation, which have connectivity of wind generation and delayed clearance of such large duration leads to generation loss, hamper the system and further lead to cascade tripping. Rajasthan representative informed that they are working on the issue and Bus Bar protection is expected to be in service again within one month.

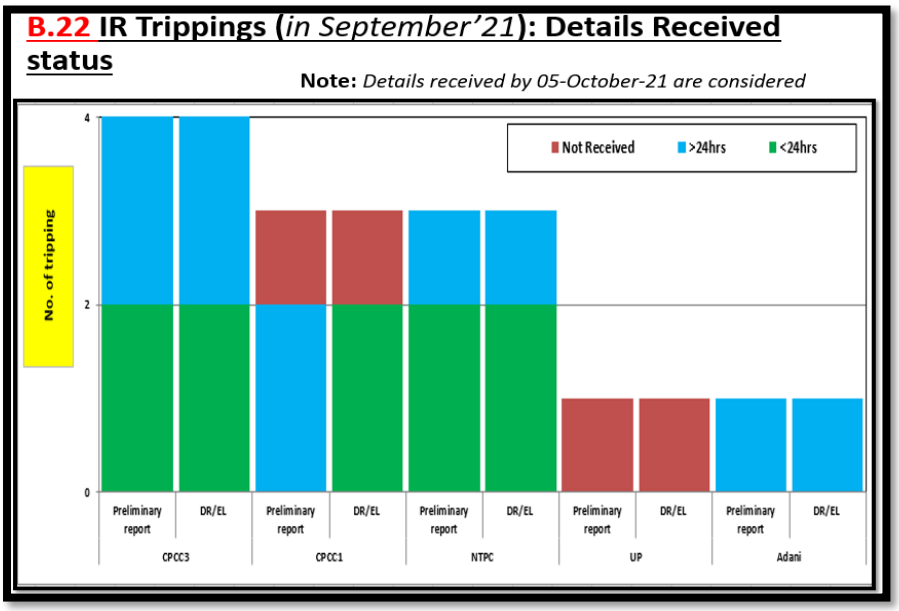
NRLDC representative raised concern about poor status of report updation by Uttarakhand and J&K on the tripping portal. He further stated that timely report submission is an important activity and all constituents are advised to take this on priority and upload the reports.

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 and discuss the same. 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 Sep'21:

A total of 12 inter-regional lines tripping occurred in the month of Sep'21. The list is attached at **Annexure-B. IV of the Agenda.**



Out of 12 number of tripping's, 5 tripping incidents are related to HVDC system. 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 is in violation of various regulations. 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 mandated by CEA (Grid Standard) Regulations.

NRLDC representative stated that in the event of tripping at 400/220 kV Balia(PG) on 28-Sep-21 at 07:20hrs, 400kV Balia-Biharshariff ckt-2 tripped on operation of Overvoltage stage 2 protection. POWERGRID representative informed that Bus tripping occurred at Balia end due to operation of Bus bar protection. NRLDC representative emphasized that reason of overvoltage during Bus tripping needs to be investigated thoroughly. POWERGRID representative agreed for the same and stated that detail report will be submitted to NRLDC/NRPC office after detail investigation.

Members may kindly 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 Sep'21

NRLDC representative informed the current status (as on 05th October 2021) of DR/EL and tripping report of utilities for the month of September 2021. Consolidated information is tabulated below:

B.23 DR/EL Status: Sep'21

S. No.	Utility	1st Sept 2021 – 30th Sept 2021												
		Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by	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	AD HYDRO	3	0	0	0	1	0	0	1	0	0	1	0
2	AHEJOL	1	1	100	1	0	100	1	0	100	1	0	100
3	ANTA-NT	3	0	0	0	0	0	0	0	0	0	0	0
4	APL	1	0	0	0	0	0	0	0	0	0	0	0
5	AURAIYA-NT	3	0	0	0	0	0	0	0	0	0	0	0
6	BAIRASUIL-NH	2	0	0	0	0	0	0	0	0	0	0	0
7	BBMB	65	8	12	9	18	19	9	23	21	8	3	13
8	CPCC1	52	9	17	12	4	25	11	9	26	9	3	18
9	CPCC2	46	0	0	0	3	0	1	5	2	7	0	15
10	CPCC3	45	4	9	4	8	11	5	7	13	4	6	10
11	DADRIGAS-NT	1	1	100	1	0	100	1	0	100	1	0	100
12	DULHASTI-NH	1	0	0	0	0	0	0	0	0	0	0	0
13	FARIDABAD-NT	2	0	0	0	0	0	0	0	0	0	0	0
14	INDIGRID	8	0	0	0	1	0	0	1	0	8	0	100
15	JHAJJAR	1	1	100	1	0	100	1	0	100	1	0	100
16	KARCHAM	1	0	0	0	0	0	0	0	0	1	0	100
17	NAPP	6	0	0	0	1	0	0	1	0	0	0	0
18	RAPPA	13	11	85	13	0	100	13	0	100	13	0	100
19	RAPPB	4	2	50	0	0	0	0	0	0	2	0	50
20	RIHAND-NT	2	0	0	0	0	0	0	0	0	0	1	0
21	SEWA-2-NH	3	0	0	0	0	0	0	0	0	0	0	0
22	SINGRAULI-NT	3	0	0	0	0	0	0	0	0	0	0	0
23	SLDC-DV	33	6	18	13	5	46	14	7	54	16	0	48
24	SLDC-HP	21	0	0	1	8	8	1	9	8	0	0	0
25	SLDC-HR	24	1	4	2	0	8	2	1	9	2	0	8
26	SLDC-JK	16	2	13	2	14	100	2	14	100	4	4	33
27	SLDC-PS	16	3	19	9	2	64	9	2	64	15	0	94
28	SLDC-RS	83	0	0	28	1	34	29	0	35	31	0	37
29	SLDC-UK	19	9	47	18	0	95	19	0	100	18	0	95
30	SLDC-UP	157	28	18	36	32	29	37	37	31	34	6	23
31	SORANG	2	1	50	1	0	50	1	0	50	1	0	50
32	TANDA-NT	2	1	50	1	1	100	1	1	100	1	0	50
33	TATAPOWER	1	1	100	1	0	100	1	0	100	1	0	100
34	UNCHAHAR-NT	2	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. Also, it is observed that reporting status has been improved from CPCC2, CPCC3, Rajasthan, HP and Haryana in September, 2021 compared to the previous month.

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

One FRC based event has occurred in the month of **Sep-2021**. Description of the event is as given below:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	End Frequency (in Hz)	*Δf*
1	28-Sep-21	17:48hrs	At 17:48 Hrs on 28th Sept 2021, a disturbance occurred at load side of internal smelter which led to load loss of approx. 1500MW (as per SCADA data) at Sterlite Vedanta in Odisha.	49.96	50.03	0.07

The Hon'ble CERC approved procedure has already been shared with all concerned during previous OCC meetings. FRC observed for each state control area for the events is tabulated below:

States	28-Sep-21 event	Remarks
PUNJAB	2%	
HARYANA	8%	
RAJASTHAN	-15%	
DELHI	293%	
UTTAR PRADESH	21%	
UTTARAKHAND	-20%	
CHANDIGARH	-2%	
HIMACHAL PRADESH	-51%	
JAMMU & KASHMIR	-7%	
NR	19%	

FRC calculation of ISGS stations based on NRLDC SCADA data is tabulated below:

Generator	28-Sep-21 event	Generator	28-Sep-21 event
Singrauli TPS	10%	Salal HEP	-7%
Rihand-1 TPS	Suspected SCADA data	Tanakpur HEP	-4%
Rihand-2 TPS	Suspected SCADA data	Uri-1 HEP	0%
Rihand-3 TPS	20%	Uri-2 HEP	Suspected SCADA data
Dadri-1 TPS	155%	Dhauliganga HEP	72%
Dadri -2 TPS	30%	Dulhasti HEP	10%
Unchahar TPS	0%	Sewa-II HEP	No generation
Unchahar stg-4 TPS	-352%	Parbati-3 HEP	0%
Jhajjar TPS	70%	Jhakri HEP	72%
Dadri GPS	24%	Rampur HEP	78%
Anta GPS	183%	Tehri HEP	15%
Auraiya GPS	-16%	Koteswar HEP	76%
Narora APS	-50%	Karcham HEP	117%
RAPS-B	-23%	Malana-2 HEP	Suspected SCADA data
RAPS-C	-3%	Budhil HEP	3%
Chamera-1 HEP	-20%	Bhakra HEP	0%
Chamera-2 HEP	3%	Dehar HEP	1%
Chamera-3 HEP	39%	Pong HEP	11%
Bairasiul HEP	Suspected SCADA data	Koldam HEP	167%
		AD Hydro HEP	-46%

FRC calculation of major state generators based on NRLDC SCADA data is tabulated below:

Generator	28-Sep-21 event	Generator	28-Sep-21 event
PUNJAB		UP	
Ropar TPS	5%	Obra TPS	0%
L.Mohabbat TPS	-5%	Harduaganj TPS	5%
Rajpura TPS	30%	Paricha TPS	Suspected SCADA data
T.Sabo TPS	-13%	Rosa TPS	0%
Goindwal Sahib TPS	-59%	Anpara TPS	-11%
Ranjit Sagar HEP	29%	Anpara C TPS	102%
Anandpur Sahib HEP	No generation	Anpara D TPS	0%
HARYANA		Bara TPS	10%
Panipat TPS	-3%	Lalitpur TPS	-1%
Khedar TPS	6%	Meja TPS	0%
Yamuna Nagar TPS	No generation	Vishnuprayag HEP	Suspected SCADA data
CLP Jhajjar TPS	0%	Alaknanda HEP	4%
Faridabad GPS	No generation	Rihand HEP	0%
RAJASTHAN		Obra HEP	-29%
Kota TPS	3%	UTTARAKHAND	
Suratgarh TPS	-8%	Gamma Infra GPS	Suspected SCADA data
Kalisindh TPS	0%	Shravanti GPS	-17%
Chhabra TPS	No generation	Ramganga HEP	No generation
Chhabra stg-2 TPS	14%	Chibra HEP	-4%
Kawai TPS	-16%	Khodri HEP	-6%
Dholpur GPS	No generation	Chilla HEP	No generation
Mahi-1 HEP	-8%	HP	
Mahi-2 HEP	No generation	Baspa HEP	4%
RPS HEP	No generation	Malana HEP	4%
JS HEP	-20%	Sainj HEP	-3%
DELHI		Larji HEP	4%
Badarpur TPS	No generation	Bhabha HEP	No generation
Bawana GPS	-12%	Giri HEP	5%
Pragati GPS	-1%	J&K	
		Baglihar-1&2 HEP	0%
		Lower Jhelum HEP	No generation

Status of Data received of FRC for 28.09.2021 Vedanta			
Data Received from		Data Not Received from	
Rajasthan	AD Hydro	HP	Karcham(JSW)
Delhi	ADANI (Kawai)	UK	Koteshwar HEP
UP	Singrauli NTPC	J&K	Rihand NTPC
	NJHPC	Punjab	Dadri-1 TPS
	NHPC	BBMB	Rampur HEP
	Tehri HEP	Haryana	APCPL Jhajjar
	Unchahhar		Others

Primary Frequency Response by Generators during Grid Event at STERLITE Vedanta on 28th Sept 2021:

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
1	**AD Hydro Unit 1**	162.34	Satisfactory response
2	**N. Jhakri Unit 1**	80.61	Satisfactory response
3	**N. Jhakri Unit 2**	90.33	Satisfactory response
4	**N. Jhakri Unit 3**	80.51	Satisfactory response
5	**N. Jhakri Unit 4**	94.62	Satisfactory response
6	**N. Jhakri Unit 5**	87.31	Satisfactory response
7	**N. Jhakri Unit 6**	86.18	Satisfactory response
8	**ADANI Kawai Unit 1**	16.04	Unsatisfactory response
9	**ADANI Kawai Unit 2**	13.68	Unsatisfactory response

Primary Frequency Response by Generators during Grid Event at STERLITE Vedanta on 28th Sept 2021:

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
10	**Singrauli Unit 6**	23.44	Unsatisfactory response
11	**Singrauli Unit 7**	14.70	Unsatisfactory response
12	**Tehri HEP Unit 1**	-2.89	Poor response
13	**Tehri HEP Unit 2**	124.01	Satisfactory response
14	**Lalitpur**	-0.67	Poor response (Raw data not received)
15	**Obra-H**	-19.45	
16	**Obra-B**	0	
17	**Rosa-H**	-7.12	
18	**Kalisindh**	11	Unsatisfactory response
19	**KTPS**	13	Unsatisfactory 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.

FRC information has been received from AD Hydro, NHPC, NJPC, Adani, Tehri, Singrauli, Delhi, UP& Rajasthan control area.

NRLDC representative informed that during the event good response has been observed from central hydro units like Jhakri, Rampur, Tehri and Gas units. He further informed that units under Rajasthan control area line KTPS, STPS, Chhabra & Kalisindh units are showing poor/unsatisfactory response.

All the concerned utilities may kindly 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

Maintaining properly tuned Power System Stabilizers in service is essential for damping of inter area and local mode of oscillations in the grid. As we all know, Indian electricity grid is continuously expanding and lots of Power Electronics devices were also commissioned in recent years changing the dynamics of grid. As possibility of development of power oscillations under certain operating conditions cannot be ruled out, PSS tuning /re-tuning is required for damping of oscillations.

In this regard one committee at NRPC level was formed in year 2014 and it was agreed that If results of Step Response Test on concerned grid connected generators indicate sufficient damping, generating company would perform next Step Test after

three year or at the time of major overhauling of the machine, whichever will be earlier and Generating Companies would arrange for re-tuning of PSS, if Step Response Test indicates insufficient damping of oscillations.

In 180th, 181st, 182nd, 183rd, 184th, 185th 186th& 187thOCC meeting, 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)

Status report in above format updated till 08thOctober 2021is attached as **Annexure-B.VI of the Agenda.**

It may be noted that except Anpara-A U-3, Parichha-C U-5, Baspa U-2, Unchahar-II U-1, Jhakri U-1&3, all units of Tehri and Koteshwar, and all units of Rampur HPS, PSS of other major units were last tuned several years ago. Therefore, once again all utilities are requested to arrange exciter step-response test or tuning of their respective units and submit the report of PSS tuning/ re-tuning/ Step Response Test through email to NRPC and NRLDC at seo-nrpc@nic.in and nrldcso2@gmail.com respectively.

NRLDC representative informed that all the units who have done Step response test before 2018 are requested to plan the exciter step-response test in Quarter 3 of 2021-22 and submit the tentative schedule of step-response test on the units with NRPC/ NRLDC.

Members agreed for the same.

32. Mock black start exercises in NR

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

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

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

The summary/schedule of mock black start exercise of ISGS hydro stations carried out in previous season is tabulated below:

Date	Revised Schedule date	Name of stations	Comment and Remarks
26-Nov-20		*Budhil	To be carried out
01-Dec-20		Dhauliganga	To be carried out
04-Dec-20	04-Dec-20	**Bairasiul**	Conducted Successfully
08-Dec-20	Not Possible this year	*Sewa-2	Power House is under complete shutdown due to leakage from HRT upto Oct'2021.
10-Dec-20	29-Dec-20	N. Jhakri and Rampur	Annual Planned Maintenance from 07th Dec to 26th Dec 2020. Yet to be carried out. Tentatively in the month of Feb-21
15-Dec-20	15-Dec-20	***Karcham and Baspa**	Exercise was partially successful. Baspa didn't extend supply to Karcham (Same to be explored by Baspa). Thus, Baspa unit was black started and synchronized the supply made available at their bus.
17-Dec-20		*Uri-I, II HEP, Lower Jhelum HEP, Pampore GT's, Upper Sindh and Kishanganga	Deferred by J&K due to inclement weather.
17-Dec-20	2nd-3rd week of January 2021	Kishanganga	As per original contract, first time Black start exercise of Kishanganga need to be performed in the presence of OEM, i.e. M/s BHEL. The confirmation from BHEL is awaited.
22-Dec-20	22-Dec-20	***Parbati-3** and Sainj	Black start of only Parbati-3 was carried out successfully. Sainj to explore black start capability and want presence of OEM since it is the first instance of blackstart at Sainj.
24-Dec-20		*Salal	Deferred by J&K due to inclement weather.
29-Dec-20	2nd-3rd week of January 2021	*Chamera-3	As one Bus and one Line of Chamera-3 Power Station is under outage. The same is expected to be restored by the last week of Dec. 2020. Therefore, the mock black start exercise of Chamera-3 may be planned in the 2nd-3rd week of January 2021.
31-Dec-20	23-Dec-20	**Koteshwar**	Exercise carried out successfully.

Date	Revised Schedule date	Name of stations	Comment and Remarks
05-Jan-21	08-Dec-20	**#Chamera-1 and 2**	Conducted but partially successful, during island formation, 400 kV Chamera1 (end)-Jalandhar ckt-1 tripped due to over voltage stage-1 protection. Chamera1 unit black started and successfully extended till the load centre at Kotla Jangan. Unit-3 of Chamera1 run in islanded mode, Unit-3 of Chamera2 also synchronized in the island. Just before unit island synchronization with the grid, unit-3 tripped on over flux protection during charging of bus reactor at Jalandhar (PG) end. It may be again planned.
08-Jan-21	08-Jan-21	*Malana-2, **AD Hydro** and Phozal	Due to shifting of Malana-2 evacuation and no black start capability w.r.t. Phozal generators black start of AD Hydro was carried out. Exercise was successful. Though, due to manual governing operation frequency variation was large
12-Jan-21	12-Jan-21	***Tehri**	Exercise carried out successfully
15-Jan-21	22-Jan-21	***Koldam**	Exercise was partially successful as during the island operation, due to fault at 220kV Jagraon feeder (distance protection operated), unit tripped as low forward power protection operated at Koldam and Island went black. Island was finally synchronized with grid by closing Main breaker of Koldam Ludhiana ckt-2 with Bus-1 at Ludhiana (PG).
19-Jan-21	09-Feb-21	***Anta GPS**	Exercise was conducted successfully. First time black start of Gas Power station with load in NR made successful. However, as synchronization facility is not available at NTPC Anta & Sawai Madhopur (RS), Anta unit was taken out from the grid. Finally, Anta bus was charged by closing Bus Coupler at Anta then subsystem was charged by charging 220kV Anta-Sawai Madhopur ckt.
21-Jan-21		*Auraiya GPS	
28-Jan-21	18-Jan-21	*Dadri GPS	Black started of GT was successful. Island was not formed with load. It will be planned again with NTPC colony load and thermal auxiliary supply as conducted earlier

* Mock Black start exercise not carried out during Year 2019-20

\# Black start exercise done for Chamera-1 only

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

Out of 19 planned exercises 9 were carried out. In addition, there was change in scheduled date in 9 out of 19 planned exercises. Thus, a large percentage of exercises were re-scheduled due to reasons like load not being available, plant personnel not ready, coordination problem among other reasons. **Constituents were requested to adhere to the finalized schedule of mock exercises during the season**.

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

Hydro Power Stations:

Date	Name of stations
26-Nov-21	* Uri-I, II HEP, Lower Jhelum HEP, Pampore GT's, Upper Sindh and Kishanganga
01-Dec-21	* Dhauliganga
04-Dec-21	Bairasiul
08-Dec-21	*Sewa-2
10-Dec-21	* N. Jhakri and Rampur
15-Dec-21	Karcham and Baspa
17-Dec-21	*Budhil
22-Dec-21	Parbati-3 and Sainj
24-Dec-21	*Salal
29-Dec-21	*Chamera-3
31-Dec-21	Koteshwar
05-Jan-22	Chamera-1 and Chamera-2
08-Jan-22	Malana-2, AD Hydro and Phozal
12-Jan-22	Tehri
15-Jan-22	Koldam

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

Mock Black start procedure circulated during last exercise/ previous year may be used. The unit selection may be changed from the one taken during last year exercise.

Gas Power Stations:

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

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

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

S. No.	Utility	Hydro Power Station	Installed Capacity(MW)
1	J&K	Baglihar	3x150
2		Baglihar stage-2	3x150
3		Lower Jhelum	3x35
4		Upper Sindh	2x11+3x35

5		Larji	3x42
6		Bhabha	3x40
7		Malana -I	2x43
8		Baspa	3x100
9	Punjab	Anandpur Sahib	4x33.5
10		Ranjit Sagar	4x150
11	Rajasthan	Mahi-I&II	2x25+2x45
12		Rana Pratap Sagar	4x43
13		Jawahar Sagar	3x33
14		Gandhi Sagar	5x23
15		Dholpur GPS	3x110
16		Ramgarh GPS	1x35.5+2x37.5+1x110
17	UP	Rihand	6x50
18		Obra	3x33
19		Vishnuprayag	4x100
20 21		Srinagar (Alaknanda)	4x82.5
	Uttarakhand	Gamma Infra	2x76+1x73
22		Shravanti	6x75
23		Ramganga	3x66
24		Chibro	4x60
25		Khodri	4x30
26		Chilla	4x36
27		Maneri Bhali-I&II	3x30+4x76
28	Delhi	IP Extn GTs	6x30+3x30
29		Pragati GPS	2x104.6+1x121.2
30		Rithala	3x36
31	Haryana	Faridabad GPS	2x137.75+1x156.07

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

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

State control area were requested to conduct the mock blackstart exercise in their respective area. All utilities were requested to share the schedule of mock exercise within 15 days to NRPC/NRLDC.

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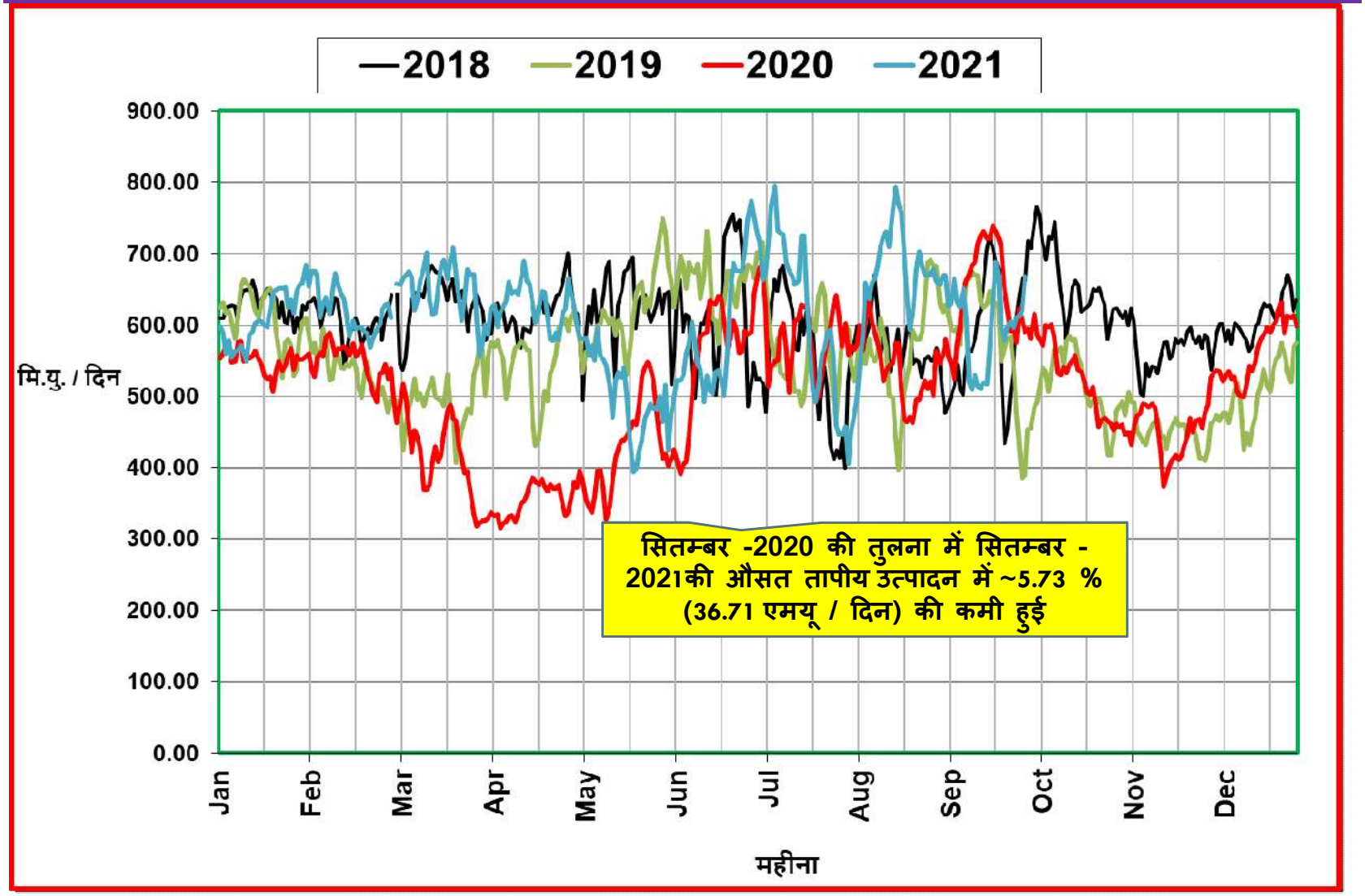
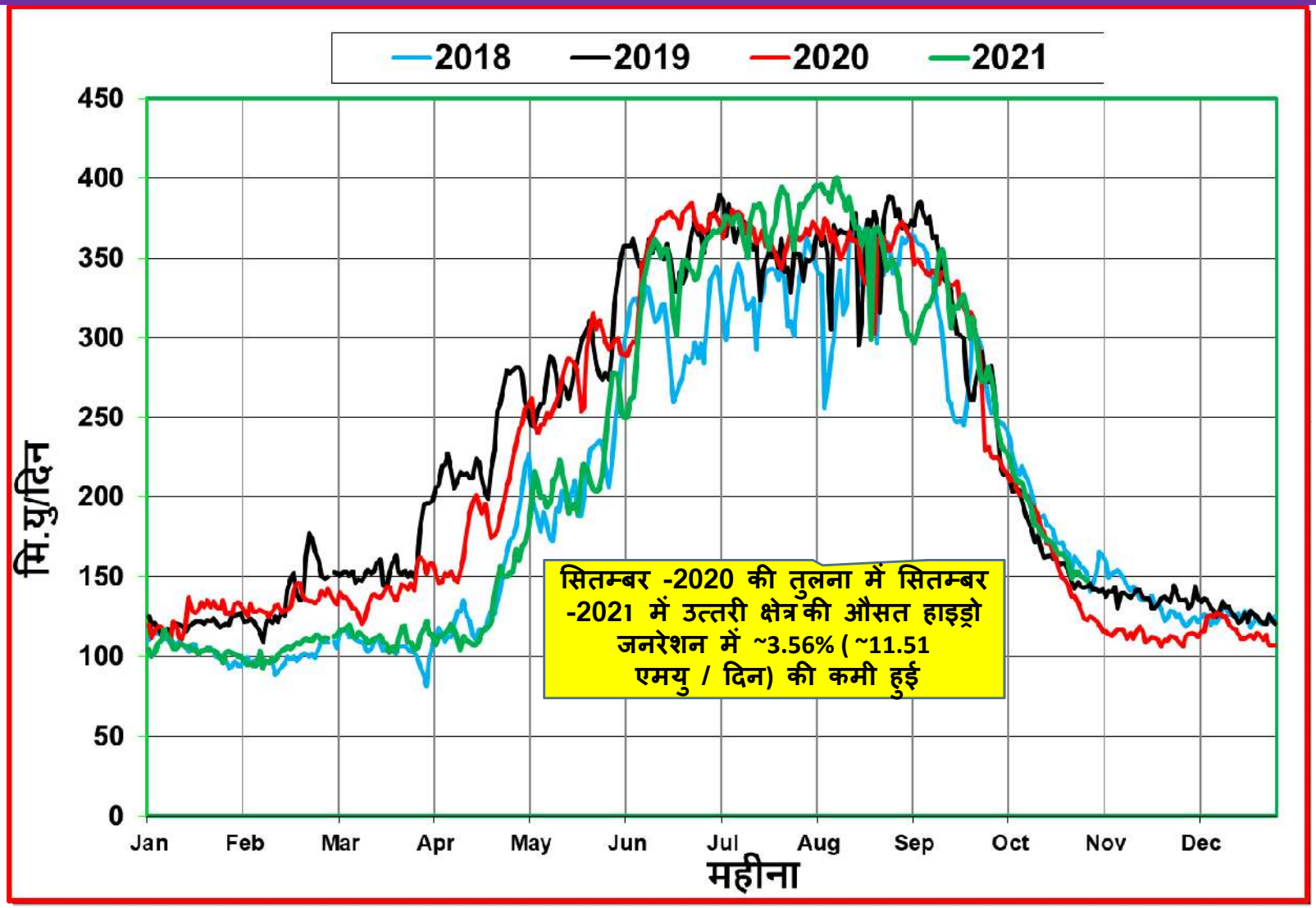
B.15

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

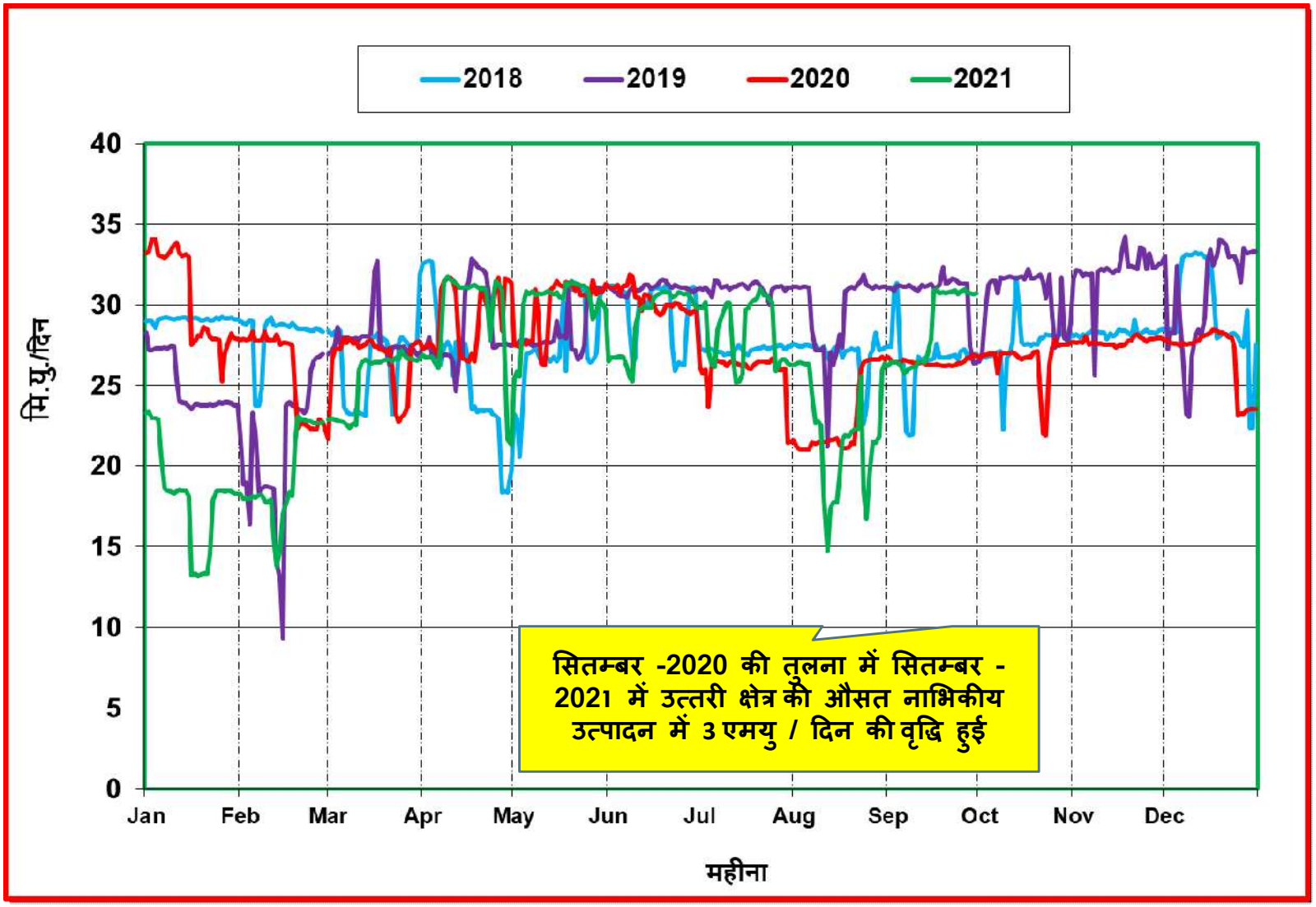


उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(Mus/Day)



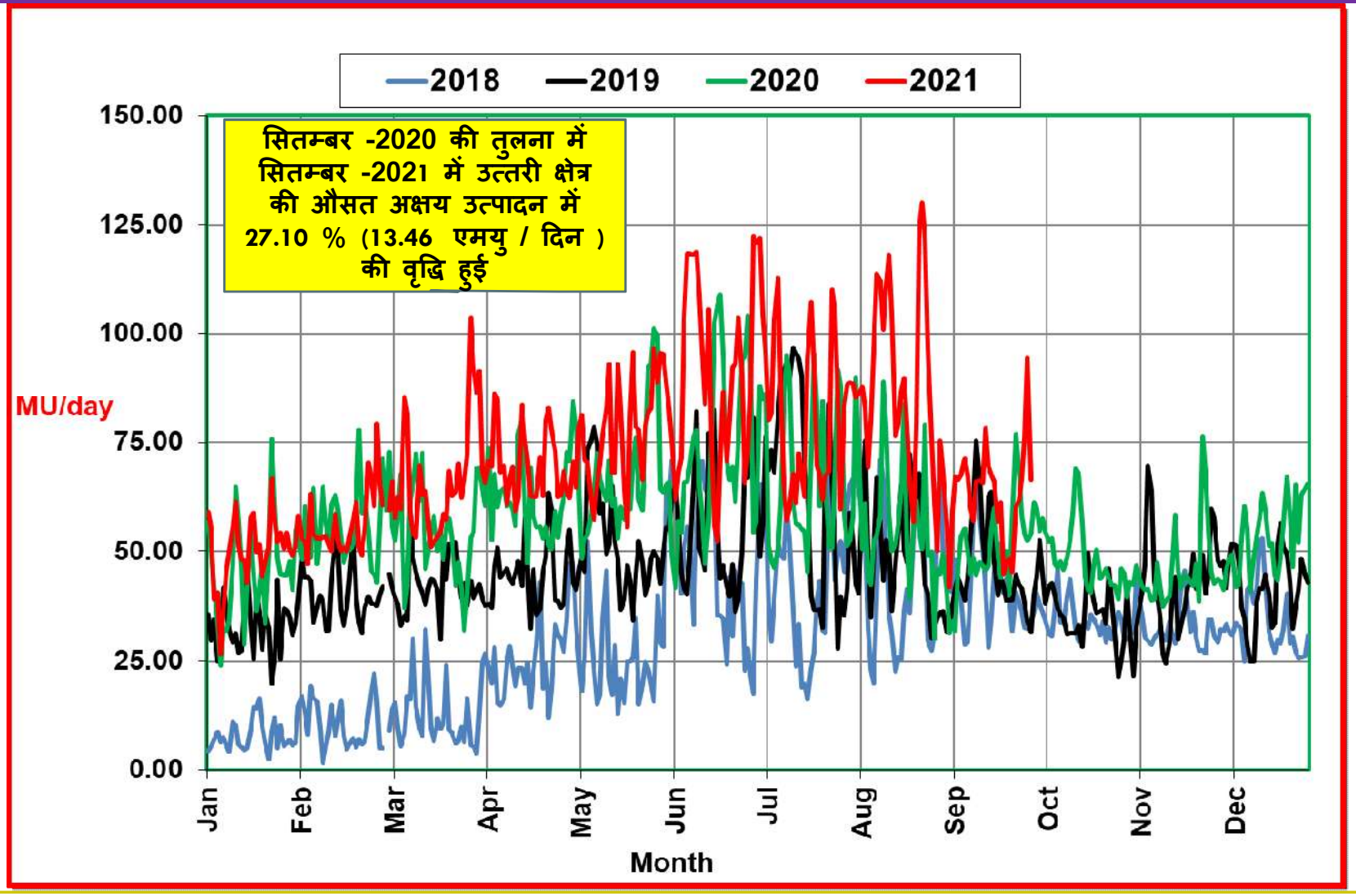
B.15

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



B.15

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



Follow up issues from previous OCC meetings

<table>
<tr><td>1</td><td>Sub-stations likely to be commissioned by next two years.</td><td>All the concerned states had been requested in past OCC meetings to submit the details of the downstream network associated specially with POWERGRID substations along with the action plan of their proposed / approved networks.</td><td>Status details of downstream networks mentioned in Annexure-A.II.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH Sep-2019
◎ DELHI Aug-2021
◎ HARYANA Apr-2021
◎ HP Mar-2021
◎ J&K and LADAKH Not Available
◎ PUNJAB Mar-2021
◎ RAJASTHAN Sep-2021
◎ UP Sep-2021
◎ UTTARAKHAND Sep-2021
All States/UTs are requested to furnish updated status on monthly basis.</td></tr>
<tr><td>3</td><td>Healthiness of defence mechanism: Self-certification</td><td>Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that “All the UFRs are checked and found functional”.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH Not Available
◎ DELHI Mar-2021
◎ HARYANA Sep-2021
◎ HP Sep-2021
◎ J&K and LADAKH Not Available
◎ PUNJAB Mar-2021
◎ RAJASTHAN Jun-2021
◎ UP Sep-2021
◎ UTTARAKHAND Mar-2021
◎ BBMB Sep-2021
All States/UTs are requested to furnish updated status on monthly basis.</td></tr>
<tr><td>4</td><td>Status of FGD installation vis-à-vis installation plan at identified TPS</td><td>List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed.
Further, progress of FGD installation work on monthly basis is monitored in OCC meetings.</td><td>Status of the information submission (month) from states / utilities is as under:
◎ HARYANA Feb-2021
◎ PUNJAB Sep-2021
◎ RAJASTHAN Oct-2021
◎ UP Sep-2021
◎ NTPC May-2021
FGD status details are enclosed as Annexure-A.II.II.
All States/utilities are requested to furnish updated status of FGD installation progress on monthly basis.</td></tr>
<tr><td>5</td><td>Information about variable charges of all generating units in the Region</td><td>The variable charges detail for different generating units are available on the MERIT Order Portal.</td><td>All states/UTs are requested to submit daily data on MERIT Order Portal timely.</td></tr>
</table>

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: Dec' 2021 (delay due to pending supplies by GE)
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection. GIS Bay is already available. Work expected to be completed by Dec.21
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection. GIS Bay is already available. Work expected to be completed by Dec.21
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vii	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
viii	PUNJAB	Dhuri	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	400kV Reactors - LOA issued on dated. 17.08.2021 and date of completion of project is 18 months from the date of LOA. 220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA.
ix	PUNJAB	Nakodar	1x25 MVAr at 220 kV	220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA.
x	PTCUL	Kashipur	1x125 MVAR at 400 kV	Already submitted to PSDF. On hold due to policy decision
xi	RAJASTHAN	Akal	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment would be forwarded to NLDC, POSOCO. The target date is Nov' 2021.
xii	RAJASTHAN	Bikaner	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment would be forwarded to NLDC, POSOCO. The target date is Nov' 2021.
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment would be forwarded to NLDC, POSOCO. The target date is Nov' 2021.

xiv	RAJASTHAN	Barmer & others	13x25 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Installment received on dt.19.02.21. Technical bid opened on 22.10.2021
xv	RAJASTHAN	Jodhpur	1x125 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Installment received on dt.19.02.21. Technical bid opened on 22.10.2021

Sl. No.	Substation	Downstream network bays	Commissioning status of ICTs / Bays	Planned 220 kV system	Revised Target	Remarks
1	Shahjahanpur, 2x315 MVA 400/220 kV	4 Nos. of 220 kV bays to be utilized	Commissioning of ICT Commissioning of Bays Jun/Sep'14	Shajahnapur-Azimpur D/C line		Connected to load on 28.07.2021
				LILO of 220kV Shajahanpur - Sitapur at Shajahanpur PG	Dec'21	Updated in 188th OCC
2	Hamirpur 400/220 kV 2x 315 MVA S/s (Augmentation by 3x105 MVA ICT)	2 nos. bays utilized under ISTS. Balance 6 nos to be utilized	Commissioning of ICT 1st -Dec'13 2nd - Mar'14 3rd - Mar'19 Commissioning of Bays 4 bays - Dec'13 2 bays - Mar'14 2 bays - Mar'19	220 kV D/C Hamirpur-Dehan line. Original schedule: Dec' 2020	Dec'21	Updated in 188th OCC
3	Sikar 400/220kV, 1x 315 MVA S/s	2 Nos. of 220 kV bays	Commissioned (date not available)	Not available	Sep'21	Work order was placed on dt. 13.04.2020 to M/s A to Z Ltd. Works start on dt. 4.12.2020. S/S-32/32, T/E-31/32 (T/E at 27 no. location is pending due to Rajasthan High Court stay), T/S-2.09/8.122 km completed. Targeted to be completed by June'2021.
4	Bhiwani 400/220kV S/s	6 nos. of 220kV bays	Commissioned (date not available)	220kV Bhiwani (PG) - Isherwal (HVPNL) D/c line	Dec'21	Delayed due to RoW issue
5	400/220kV Tughlakabad GIS	10Nos. of 220kV bays	Commissioned (date not available)	RK Puram – Tughlakabad (UG Cable) 220kv D/c line	Jul'22	PO for supply and ETC of D/C UG cable awarded.
				Masjid Mor – Tughlakabad 220kv D/c line	Mar'22	PO for supply and ETC of D/C UG cable awarded.
6	400/220kV Kala Amb GIS (TBCB)	6 Nos. of 220kV bays	Commissioned in Jul'2017	220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Dec'21	Details for utilizing remaining 4 bays is not available

FGD Status

Updated status of FGD related data submission

NTPC (16.06.2021)
MEJA Stage-I
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (20.10.2021)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (22.10.2021)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (14.10.2021)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Adani Power Ltd. (28.10.2021)
KAWAI TPS
Lalitpur Power Gen. Co. Ltd. (22.10.2021)
Lalitpur TPS
Lanco Anpara Power Ltd. (22.10.2021)
ANPARA-C TPS
Rosa Power Supply Company (22.10.2021)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (22.10.2021)
Prayagraj TPP
APCPL (17.08.2021)
INDIRA GANDHI STPP

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB
HGPCL
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS
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: 31-12-2021), INDIRA GANDHI STPP U#2 (Target: 31-03-2022), INDIRA GANDHI STPP U#3 (Target: 30-06-2022)
GVK Power Ltd.	GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020) – initial target
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) – initial target
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: 30-04-2020), DADRI (NCTPP) U#6 (Target: 29-02-2020), RIHAND STPS U#1 (Target: 28-02-2022), RIHAND STPS U#2 (Target: 31-12-2021), RIHAND STPS U#3 (Target: 31-12-2023), RIHAND STPS U#4 (Target: 31-12-2023), RIHAND STPS U#5 (Target: 30-06-2023), RIHAND STPS U#6 (Target: 30-06-2023), SINGRAULI STPS U#1 (Target: 31-08-2022), SINGRAULI STPS U#2 (Target: 31-08-2022), SINGRAULI STPS U#3 (Target: 31-08-2022), SINGRAULI STPS U#4 (Target: 31-08-2022), SINGRAULI STPS U#5 (Target: 31-08-2022), SINGRAULI STPS U#6 (Target: 31-08-2022), SINGRAULI STPS U#7 (Target: 31-08-2022), UNCHAHAR TPS U#1 (Target: 30-09-2023), UNCHAHAR TPS U#2 (Target: 30-09-2023), UNCHAHAR TPS U#3 (Target: 30-09-2023), UNCHAHAR TPS U#4 (Target: 30-09-2023), UNCHAHAR TPS U#5 (Target: 30-09-2023), UNCHAHAR TPS U#6 (Target: 31-03-2023), MEJA Stage-I U#1 (Target: 31-03-2022), MEJA Stage-I U#2 (Target: 31-03-2022), TANDA Stage-I U#1 (Target:), TANDA Stage-I U#2 (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) – initial target
Lalitpur Power Gen. Company Ltd.	LALITPUR TPS U#1 (Target: 31-12-2024), LALITPUR TPS U#2 (Target: 30-09-2024), LALITPUR TPS U#3 (Target: 30-06-2024)
Lanco Anpara Power Ltd.	ANPARA C TPS U#1 (Target: 31-12-2023), ANPARA C TPS U#2 (Target: 31-12-2023)
Prayagraj Power Generation Company Ltd.	PRAYAGRAJ TPP U#1 (Target: 31-12-2024), PRAYAGRAJ TPP U#2 (Target: 31-12-2024), PRAYAGRAJ TPP U#3 (Target: 31-12-2024)
PSPCL	GH TPS (LEH.MOH.) U#1 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#2 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#3 (Target: 31-12-2024), GH TPS (LEH.MOH.) U#4 (Target: 31-12-2024), GGSSTP, Ropar U#3 (Target: 31-03-2022), GGSSTP, Ropar U#4 (Target: 31-05-2022), GGSSTP, Ropar U#5 (Target: 31-07-2022), GGSSTP, Ropar U#6 (Target: 30-09-2022)

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

MIS Report for Status of Islanding Schemes

Implemented Schemes

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

Under Implementation/ Newly Proposed/Under Discussion

Sl. No.	Islanding Scheme	SLDC	Status	DPR for PSDF funding (Required / Not Required)	Timelines Status - Proposed/Actual										Remarks
					Study		Design		Approval		Procurement		Commissioning		
					Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	
1	Lucknow-Unchahar IS	UP	Under Implementation		-	-	-	-	-	-	-	-	-	-	UPSLDC has identified the load in co-ordination with UPPTCL. UPSLDC has requested STU to carry out studies on Unchahar Islanding scheme and provide timeline for implementation. No information has been received yet. In addition to this UPSLDC has created SCADA display of Islanding scheme.
2	Agra IS	UP	Newly Proposed		-	-	-	-	-	-	-	-	-	-	UPSLDC has carried out steady state analysis of proposed islanding and shared the findings with NRLDC. NRLDC responded stating that Island seems feasible as per dynamic analysis but UP may refer it to consultant. UPSLDC has requested STU to carry out studies on Newly Proposed Agra Islanding scheme and provide timeline for implementation. No information has been received yet.
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Newly Proposed	-	-	-	-	-	-	-	-	-	-	-	RRVPNL has submitted shceme to NRPC for consideration and approval vide letter dtd 22.10.2021. The same has been sent to NRLDC for comment.
4	Patiala-Nabha Power Rajpura IS	Punjab	Newly Proposed	-	-	-	-	-	-	-	-	-	-	-	
5	Pathankot-RSD IS	Punjab	Newly Proposed	-	-	-	-	-	-	-	-	-	-	-	
6	Talwandi Sabo IS	Punjab	Newly Proposed	-	-	-	-	-	-	-	-	-	-	-	
7	Dehradun IS	Uttarakhand	Newly Proposed	-	-	-	-	-	-	-	-	-	-	-	
8	Jammu-Salal IS	J &K	Under Discussion	-	-	-	-	-	-	-	-	-	-	-	
9	Suratgarh IS	Rajasthan	Under Discussion	-	-	-	-	-	-	-	-	-	-	-	RRVPNL has submitted shceme to NRPC for consideration and approval vide letter dtd 22.10.2021. The same has been sent to NRLDC for comment.
10	Chamba-Chamera IS	HP	Under Discussion	-	-	-	-	-	-	-	-	-	-	-	
11	Kangra-Chamba-Bairasuil IS	HP	Under Discussion	-	-	-	-	-	-	-	-	-	-	-	
12	Kullu-Dehar IS	HP	Under Discussion	-	-	-	-	-	-	-	-	-	-	-	
13	Butari-Jamsher-Verpal IS	Punjab	Under Discussion	-	-	-	-	-	-	-	-	-	-	-	
14	Kargil-Ladakh IS	Ladakh	Under Discussion	-	-	-	-	-	-	-	-	-	-	-	

New Elements First Time Charged During September 2021

S. No.	Type of transmission element	Total No
1	765kV line	02
2	400kV line	03
3	LILO of lines	04
4	Anti-theft charging of lines	01
5	ICTs	05
6	GT	01
7	Bus Reactors	04
8	Line Reactors	03
9	765kV, 400kV, 220 kV Bays	49
Total New Elements charged		72

LONG OUTAGES REPORT AS ON 14-10-22021

S. No`	Element Name	Type	Owner	Outage Date and Time		Outage days	Reason / Remarks
A	**LINE**						
1	220 KV Kishenpur(PG)-Ramban(PDD) (PDD) Ckt-1	Line	PDD JK	31-03-2020	16:43	561	Due to heavy land slide near village Dalwas at Ramban damages occurred to 220 KV D/C KPTL at Location No :-187,188 &189 and there is every apprehension of collapsing Tower Loc No 189 .
2	220 KV New Tanda (UP)-Sohawal(PG) (UP) Ckt-1	Line	UPPTCL	06-09-2021	23:37	37	Phase to phase fault Y-B Fault current Iy 4.28kA, Ib 4.24kA, Dist. 39.3km from new Tanda end.Tower damage reported. Expected by 30 Nov
3	220 KV New Tanda (UP)-Sohawal(PG) (UP) Ckt-2	Line	UPPTCL	06-09-2021	23:37	37	Phase to earth fault B-N , Fault current 2.49kA, Dist. 35.6 km from new Tanda end. Tower damage reported. Expected by 30 Nov
4	220 KV KISHENPUR(PG)-MIR BAZAR(PDD) (PDD) CKT-1	Line	PDDJK	25-09-2021	11:30	19	for dismantling and erection of superstructure, laying and stringing of conductor at tower location no 34 (SZ+6) (OCC 187)
5	220 KV Sohawal(PG)-Gonda(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:00	35	Emergency shutdown of line taken, as tower no. 34 is affected by flood. Expected in March 2022.
6	220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:12	35	Emergency shutdown of line taken, as tower no. 34 is affected by flood.
B	**BAYS**						
1	419 MAIN BAY - 50 MVAR BUS REACTOR NO 1 AT 400KV AMARGARH(NRSS XXIX) AND 400KV BUS 2 AT AMARGARH(NRSS XXIX)	BAY	NRSS XXIX	07-07-2020	09:34	464	Relay maloperation
2	40452B MAIN BAY - 400KV SURATGARH(RVUN)-RATANGARH(RS) (RS) CKT-1 AT Ratangarh(RS)	BAY	RRVPNL	25-12-2020	17:05	292	Emergency shutdown for refilling of SF6 gas in R-phase of Circuit Breaker. Later leakage found. Revival delayed due to non-availability of required spare parts.
3	402 MAIN BAY - 400/220 KV 315 MVA ICT 2 AT LAHAL(HP) (HPSEB)	BAY	HPSEB	23-08-2021	09:52	52	For attending SF6 gas leakage in 402 main bay.
4	416 MAIN BAY - 400 KV MEJA TPS(MUN)-MASOLI(UP) (UP) CKT-1 (UPPTCL)	BAY	UPPTCL	15-09-2021	17:12	28	To attend SF6 gas pressure low alarm in 416 main bay CB.
5	429 BUS SECTIONALIZER BAY - 400KV BUS 1 AT MOGA(PG) (POWERGRID) AND 400KV BUS 3 AT MOGA(PG) AT 400 KV MOGA(PG) (POWERGRID)	BAY	POWERGRID	22-09-2021	11:38	22	For segregation of GIS & AIS Bus at Moga.
6	428 BUS SECTIONALIZER BAY - 400KV BUS 2 AT MOGA(PG) (POWERGRID) AND 400KV BUS 4 AT MOGA(PG) AT 400 KV MOGA(PG) (POWERGRID)	BAY	POWERGRID	22-09-2021	11:39	22	For segregation of GIS & AIS Bus at Moga.
7	704-52A MAIN BAY - 765 KV ANTA-PHAGI (RS) CKT-1 (RRVPNL) AT 765KV ANTA(RS)	BAY	RRVPNL	23-09-2021	18:04	20	Mechanical fault in the main Circuit Breaker 704-52A at Anta(RS).
8	408 TIE BAY - 400KV ROORKEE(PG)-KASHIPUR(UK) (PG) CKT-1 AND FUTURE AT ROORKEE(PG)	BAY	POWERGRID	24-09-2021	10:06	20	for 500MVA ICT-III main bay commissioning.

S.No	Element Name	Type	Owner	Outage		Outage days	Reason / Remarks
C	**ICT**						
1	400/220 kV 315 MVA ICT 1 at Bhilwara(rs)	ICT	RRVPNL	12-05-2019	23:42	885	Oil leakage in transformer. Expected revival in Dec-2021.
2	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	ICT	UPPTCL	13-03-2020	02:46	580	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover. To be replaced by 500 MVA ICT. Expected revival in Dec-2021.
3	400/220 kV 315 MVA ICT 2 at Bawana(DV)	ICT	DTL	30-03-2021	17:35	197	400kV side B-phase bushing blasted. Tripped on differential protection, REF protection. ICT catches fire and damaged.
4	400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP)	ICT	UPPTCL	19-08-2020	16:30	421	500 MVA ICT-I also got damaged due to fire in ICT-II, for protection testing. Expected revival in Oct-2021.
5	400/220 kV 315 MVA ICT 2 at Mundka(DV)	ICT	DTL	20-09-2019	00:419	755	Due to fire in ICT.
6	220/33 kV 125 MVA ICT 1 at Saurya Urja Solar(SU)	ICT	Saurya Urja	27-05-2021	23:42	140	Operation of transformer protection
D	**BUS**						
1	400 KV Kadarpur (GPTL) - Bus 1	BUS	GPTL	17-04-2021	13:18	179	E/S/D taken due to abnormal humming sound observed from 400KV B-phase BUS-1 CVT at Kadarpur.
2	400 KV Lahal(HP) - Bus 1	BUS	HPSEB	23-08-2021	09:52	52	For attending SF6 gas leakage C04 GIS chamber.
E	**BUS REACTORS**						
1	80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SJ)	BR	SJVNL	17-10-2019	12:58	727	Flashover/Fault in 80MVAR Bus Reactor cleared by Bus Bar Protection. Expected revival in Nov-2021.
F	**FSC**						
1	FSC of 400 kV Kanpur-I at Ballabgarh	FSC	POWERGRID	14-03-2017	10:58	1638	B-phase Signal column blast. Contract awarded and expected to be revived by Sep'21

H	GENERATING UNITS					
S.No	**Station**	**Owner**	**Outage Reason**	**Outage Date**	**Outage Time**	**Outage duration(in days)**
1	126 MW Bhakra HPS - Unit 3	BBMB	Renovation and Maintenance work. Expected by Oct-2021 end.	01-04-2019	09:20	927
2	126 MW Bhakra HPS - Unit 7	BBMB	Renovation and Maintenance work. Expected by Oct-2021 end.	05-10-2020	08:43	374
3	40 MW Sewa-II HPS - UNIT 2	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by Jan-2022.	25-09-2020	00:00	384
4	40 MW Sewa-II HPS - UNIT 3	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by Jan-2022.	25-09-2020	00:00	384
5	40 MW Sewa-II HPS - UNIT 1	NHPC	Excessive leakage in HRT between audit-II and Dam. Expected by Jan-2022.	25-09-2020	00:00	384
6	600 MW RGTPP (Khedar) - UNIT 2	HVPNL	Capital Overhauling. Expected date to be confirmed from HVPNL. Expected by Feb-2022.	02-03-2021	00:00	226
7	210 MW Panipat TPS - UNIT 6	HPGCL	Tariff not approved by HERC	23-07-2020	13:33	447

S.No	Station	Owner	Reason(s)	Outage Date & Time		Outage duration(in days)
8	165 MW Dehar HPS - UNIT 4	BBMB	Penstock Inspection. Expected by 15-Oct 2021.	28-10-2020	11:50	351
9	300 MW DCRTPP (Yamuna Nagar) - UNIT 1	HVPNL	Furnace pressure high. Expected by Oct-2021 end.	08-07-2021	17:16	97
10	66 MW Pong HPS - UNIT 4	BBMB	Failure of compressed air system of Breaking. Expected by Oct-2021 end.	28-07-2021	15:00	77
11	660 MW Chhabra SCTPS - UNIT 6	RRVPNL	Annual Maintenance for 75 days	03-08-2021	08:57	72
12	500 MW Rihand-II STPS - UNIT 1	NTPC	Over hauling	25-08-2021	22:38	49
13	210 MW Guru Gobind Singh TPS (Ropar) - UNIT 3	PSPCL	Rotor earth fault. Fault rectified now closed on coal shortage since 07.10.2021 14:30 hrs	27-08-2021	20:07	47
14	250 MW Chhabra TPS - UNIT 2	RRVPNL	Due to ESP(Electrostatic Precipitator) Structure damage	05-09-2021	23:04	38
15	250 MW Chhabra TPS - UNIT 4	RRVPNL	Due to ESP structure damage	09-09-2021	00:47	35
16	250 MW Chhabra TPS - UNIT 3	RRVPNL	Due to ESP Structure damage	09-09-2021	03:00	35