भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

संख्या: उ.क्षे.वि.स./ प्रचालन/106/01/2022/2565-2606 दिनांक: 07.03.2022

विषय**:** उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 192वीं बैठक का कार्यवृत |

Subject: Minutes of 192nd OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 192वीं बैठक दिनांक 18.02.2022 को आयोजित की गयी थी। उक्त बैठक का कार्यवृत्त उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट http://164.100.60.165 पर उपलब्ध है। यदि कार्यवृत पर कोई टिप्पणी हो तो कार्यवृत जारी करने के एक सप्ताह के अन्दर इस कार्यालय को भेजें |

192nd meeting of the Operation Co-ordination Sub-Committee of NRPC was held on 18.02.2022. The Minutes of this meeting has been uploaded on the NRPC website http://164.100.60.165. Any comments on the minutes may kindly be submitted within a week of issuance of the minutes.

संलग्नक**:** यथोपरि

07/03/22.

(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 **192**वीं बैठक का कार्यवृत्त

192nd meeting of OCC of NRPC was held on 18.02.2022 through video conferencing.

खण्ड-क: उ.क्षे.वि.स. **PART-A:NRPC**

1. Confirmation of Minutes

Minutes of 191st OCC meeting was issued on 08.02.2022. OCC confirmed the minutes.

2. Review of Grid operations of January 2022

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

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

- **Delhi**

The negative variation in Demand and Energy Consumption is mainly due to covid-third wave and subsequent restrictions.

- **Rajasthan**

The Energy consumption decreased by 9% w.r.t. anticipated Energy requirement due to scattered rain during the month & Peak Demand increased by 0.9% which is within permissible limit.

- **Punjab**

Actual maximum demand and actual energy requirement are less as compared to anticipated maximum demand and anticipated energy requirement respectively because of rainy spell in the state of Punjab during month of January 2022.

- **Haryana**

Variation in demand & consumption during January 2022 is due to covid restrictions and reduction in agricultural load due to heavy rainfall.

- **Uttarakhand**

Variation in demand & consumption during January 2022 is due to covid restrictions and snowfall.

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

No significant deviation in any of the states was observed.

3. Maintenance Programme of Generating Units and Transmission Lines

3.1. The maintenance programme of generating units and transmission lines for the month of March 2022 was deliberated in the meeting on 17.02.2022.

3.2. Following shutdown request was also approved/denied in the OCC meeting:

Element Name	Owner	Reason	Requested From	Requested To	Decision of OCC
500 MW RIHAND-I STPS - UNIT 2	NTPC	Boiler+FGD Gate installation+ Generator	16-Mar-2022 00:00 Hrs	19-Apr-2022 23:59 Hrs	Shutdown was rejected as UP denied consent. NTPC was asked to propose a reschedule outage plan to complete the work before 05th April.
Singrauli#2 (200 MW)	NTPC	Capital Overhaul; Boiler+ Generator+ Turbine+ DDCMIS	23-Mar-2022	06-May-2022	Shutdown was rejected as it spills over in the Month of April and the outage plan deviates from the discussions held in the 25th LGBR sub-committee meeting of NR.
Meja Unit-1	Meja UNPL	Unit-1 capital overhaul and HP rotor replacement	25-Mar-2022 00:00	23-May-2022 24:00	Shutdown was rejected as it spills over in the Month of April and May. Forum asked Meja to apply in September end; subject to grid conditions.
400 KV VISHNU PRAYAG-MUZAFFA		FOUNDATION OF LINE AT LOCATION NO 20 GOT DAMAGED.EREC	01-Mar-2022	15-Mar-2022	Shutdown was approved subject to confirmation of date by Uttarakhand

Element Name	Owner	Reason	Requested From	Requested To	Decision of OCC
R NAGAR LINE		TION/ COMMISSIONING OF NEW TOWER AT NEWLY CONSTRUCTED FOUNDATION.			SLDC after revival of 132kV Srinagar Rishikesh T/L.
400 KV ALAKNANDA- VISHNU PRAYAG LINE		FOUNDATION OF LINE AT LOCATION NO 20 GOT DAMAGED.ERECTION/ COMMISSIONING OF NEW TOWER AT NEWLY CONSTRUCTED FOUNDATION.	03-Mar-2022	15-Mar-2022	Shutdown was approved subject to confirmation of date by Uttarakhand SLDC after revival of 132kV Srinagar Rishikesh T/L.

4. Planning of Grid Operation

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

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	110	260	Revision not submitted
	Requirement	110	240	
	Surplus / Shortfall	0	20	
	% Surplus / Shortfall	0.0%	8.3%	
DELHI	Availability	3661	5411	17-Feb-22
	Requirement	2050	4200	
	Surplus / Shortfall	1611	1211	
	% Surplus / Shortfall	78.6%	28.8%	
HARYANA	Availability	4800	10580	08-Feb-22
	Requirement	4100	7300	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	700	3280	
	% Surplus / Shortfall	17.1%	44.9%	
HIMACHAL PRADESH	Availability	936	1864	04-Jan-22
	Requirement	946	1850	
	Surplus / Shortfall	-9	14	
	% Surplus / Shortfall	-1.0%	0.8%	
J&K and LADAKH	Availability	1220	3920	Revision not submitted
	Requirement	1970	3460	
	Surplus / Shortfall	-750	460	
	% Surplus / Shortfall	-38.1%	13.3%	
PUNJAB	Availability	5185	8000	10-Jan-22
	Requirement	4172	7440	
	Surplus / Shortfall	1013	560	
	% Surplus / Shortfall	24.3%	7.5%	
RAJASTHAN	Availability	10289	19000	17-Feb-22
	Requirement	8060	15100	
	Surplus / Shortfall	2229	3900	
	% Surplus / Shortfall	27.7%	25.8%	
UTTAR PRADESH	Availability	10540	20000	11-Feb-22
	Requirement	10075	20000	
	Surplus / Shortfall	465	0	
	% Surplus / Shortfall	4.6%	0.0%	
UTTARAKHAND	Availability	1132	2080	10-Jan-22
	Requirement	1153	2100	
	Surplus / Shortfall	-22	-20	
	% Surplus / Shortfall	-1.9%	-1.0%	
NORTHERN REGION	Availability	37873	67000	
	Requirement	32636	58100	
	Surplus / Shortfall	5237	8900	
	% Surplus / Shortfall	16.0%	15.3%	

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	Sep-2021
Haryana	Apr-2018	Nov-2021
Himachal Pradesh	Apr-2018	Dec-2021
Punjab	Apr-2018	Dec-2021
Rajasthan	Apr-2018	Dec-2021
Uttar Pradesh	Apr-2018	Oct-2021
Uttarakhand	Apr-2018	Sep-2021

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

6. 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.

6.22. Tuned base-case has been received from NRLDC vide mail dtd 10.11.2021.

6.23. In 189th OCC, NRPC representative apprised that tuned base-case received from NRLDC is under examination in NRPC Sectt. After examination, the same will be sent to CPRI for correction in the report along with the comments submitted by states.

6.24. In 190th OCC, NRPC representative informed that tuned base-case along with comments of states has been sent to CPRI vide mail dated 30.11.2021 for correction in the report.

6.25. In 191st OCC, NRPC representative apprised the forum that a meeting was held between members of the sub-group, CPRI representatives, and officials from NRPC Sectt & NRLDC on 05.01.2022, wherein it was decided that CPRI shall tune the Q_{gen} value by taking help of NRLDC. Tuning may be done for some machines of Punjab (such as Talwandi Sabo), Uttarakhand (such as Shravanti),

Himachal Pradesh, and Jammu. CPRI shall also tune Q_{gen} of Central Sector machines such as Salal, Rampur, Bhakra, Dehar etc. These Q_{gen} tunings shall be done in spirit to relieve machines from absorbing MVARs and to avoid over compensation in system due to recommended capacitors. CPRI has intimated 20th Jan'22 as target date for the activity.

6.26. In the meeting (192nd OCC), NRPC representative apprised the forum that report has been received from CPRI vide mail dtd. 14.02.2022. However, some grammatical and typographical error were observed in the report and CPRI has been requested to resolve the same. After resolution of same, report shall be shared with sub-group members tentatively in next week. After final acceptance, payment to CPRI may be processed.

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 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.

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

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

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

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

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

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

8.2. In 192nd OCC, Transmission utilities of all states/UT's were requested to submit the updated status of Down Stream network by State utilities from ISTS Station (enclosed as ***Annexure-A-I.I***) before every OCC meeting.

9. NR Islanding scheme

9.1. Based on the decisions taken in the meeting taken by Hon'ble Minister of State (IC) for Power and New & Renewable Energy on 28.12.2020, Islanding Schemes for NR have been continuously reviewed/discussed in various forums.

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

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

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

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

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

9.7. UP and Punjab representatives stated that they have sent the offer along with data to CPRI for study of Islanding Schemes. HP intimated that system study is under process at DISCOM end. Rajasthan SLDC assured the submission of RAPS SCADA display on the same day.

9.8. NRLDC submitted that they use PSSE software for system study but Rajasthan has submitted details of Islands in MI Power Software, therefore, they are exploring whether they can use that file.

9.9. MS, NRPC desired to know the reason for sending data to CPRI for system study. He stated that it may be done at state level itself.

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

9.11. MS, NRPC expressed concern regarding apathy of states in implementation of Islanding Schemes. He stated that all SLDCs will intimate the names of Islands for which system study from CPRI is required along with justification for the same by 30th Nov, 2021. He also set timeline of 30th Nov, 2021 for Delhi to submit SOP data. He stated that communication may be sent to RAPS for submission of SOP data at the earliest.

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

9.13. UPSLDC vide letter dated 01.12.2021 has submitted the names of islands for which system study from CPRI is required. UPSLDC has highlighted, inter-alia, that involvement of long length 765kV line and high number of buses necessitates them to go for system study by CPRI. It has mentioned that SLDC/STU has no expertise in such studies and before doing any investment on the project, proper study is must for successful implementation and operation of Islands.

9.14. HPSLDC vide lett er dtd. 18.12.2021 has intimated that a meeting was held on 26.11.2021 between HPSLDC and HPSEBL wherein a team of officers from HPSLDC and HPSEBL has been formed to carry out transient study of all islands within a month.

9.15. UPSLDC representative informed that CPRI has asked for some additional details and technical commercial offer would be provided to them by CPRI by 15th Jan 22.

9.16. NRLDC representative informed that report received from Rajasthan regarding the Jodhpur-Barmer-Rajwest islanding scheme is in order and Rajasthan SLDC can proceed ahead. Further, NRLDC submitted that they use PSSE software for system study but Rajasthan has submitted details of Islands in MI Power Software, therefore, they are not able to access the file.

9.17. Rajasthan SLDC representative informed that they have given the details in the hard copy of the load and generation to be considered for islanding scheme, and based on that have requested NRLDC to simulate it in PSSE software for validation. NRLDC representative agreed to the request of the Rajasthan SLDC.

9.18. Uttarakhand SLDC representative informed that hydro stations near Dehradun are peaking stations and the proposed Dehradun islanding scheme appears to be infeasible. NRPC representative informed that some schemes in NR have been proposed by considering Hydro stations and Dehradun islanding scheme was proposed by the state SLDC itself in view of all factors. Thus, Uttarakhand SLDC shall immediately conduct study on the proposed Islanding Scheme having Khodri & Chibro units and provide status on the feasibility of scheme with supporting data so that same may be communicated to the Ministry.

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

9.20. Uttarakhand representative informed that major hydro stations e.g. Chibro, Khodri etc at Dehradun Region in Yamuna valley are non-must run and peaking stations. Therefore, it is technically not feasible to implement Dehradun as an islanding scheme. However, nominations of nodal officers from various utilities (PTCUL, UJVN Ltd & UPCL) are being sought for the formation of internal committee for accessing the possibility of Dehradun as Islanding scheme and the report shall be submitted to NRPC Secretariat subsequently.

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

9.22. MS, NRPC stated that all constituents that have given their information about the planning of islanding scheme shall take up the work on top priority and submit the progress in time bound manner by submitting the updated MIS format every month.

9.23. NRLDC representative informed that Rajasthan SLDC is modelling data on PSSE software and it is expected to be completed within one week. Thereafter,

NRLDC will submit its comments on the same. Rajasthan representative consented for the same.

9.24. UP and Punjab were asked to update the status of their study being done by CPRI. Both informed that there is no progress since last OCC and they are waiting for response from CPRI.

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

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

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

9.28. NRPC representative informed that a meeting was convened by HPSLDC with officials of NRPC Sectt., NRLDC, HPSEBL, & HPPTCL on 11.02.2022. It was observed that system study work has been pending due to pre-occupation of the concerned resource. Therefore, it was decided that HPSLDC shall write letters to MDs of HPSEBL & HPPTCL. It was decided to review the status in another meeting in the first week of March 22. It was intimated that HPSLDC has written letter dt. 14.02.2022 to HPSEBL, & HPPTCL.

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

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 09th February 2022).

10.2. NRPC representative informed that vide mail dated 11.02.2022 forwarding therewith a letter from Ministry regarding “Coal transportation bottlenecks” respective SLDC's and Inter-state generating stations of NR region were requested that issues/problems being faced by the thermal power plants in your region with respect to transportation of coal shall be intimated. However, response in this regard is awaited, henceforth they are requested to submit their reply on urgent basis.

11. Resource Adequacy and Peak Demand of Delhi

11.1. NRPC representative apprised the forum that a meeting was chaired by Secretary (Power), MoP on 25.01.2022 to review the preparedness to meet the forecasted electricity peak demand for Delhi during 2022-23.

11.2. Further, a meeting was taken by MS, NRPC on 15.02.2022 for reviewing preparedness of Delhi for Summer 2022-23. It was observed that Delhi needs to firm up its proposed STOA.

11.3. OCC forum noted the above.

12. Transmission constraints in Northern Region

12.1. NRPC representative stated that above agenda was also taken up in 191th OCC meeting, wherein NRLDC representative mentioned that a format would be circulated amongst the concerned utilities of NR for whom the transmission constraint was discussed in the meeting and they were requested to update the same.

12.2. NRPC representative stated that UPSLDC vide letter dated 02.02.2022 has submitted a list of overloaded 220kV transmission line and 400kV sub-stations with N-1 non-compliant ICTs.

12.3. In the 192nd OCC, UPPTCL representative informed that vide mail dated 14.02.2022 they have also submitted the ongoing steps being taken to overcome these transmission constraints along with the target date.

12.4. RRVPNL has vide mail dated 17.02.2022 has submitted the transmission constraints of Rajasthan as per the NRLDC format.

12.5. Uttarakhand representative informed that they have submitted the transmission constraints details in their control area as per requisite format to NRLDC vide mail dated 20.01.2022.

13. Implementation of revised SPS scheme for evacuation of generation from Lalitpur TSS (Agenda by UP SLDC)

13.1. NRPC representative apprised the forum that UPSLDC vide letter dated 25.01.2022 has informed that revised SPS scheme for evacuation of generation from Lalitpur TPS, approved in 189th OCC meeting, has been implemented on 22.01.2022.

13.2. The above cited information was noted by the OCC forum.

14. Forced Shifting of Tower no. 169 of 400kV D/C Roorki-Kashipur I & II line on new Pile Foundation due to Change in Natural River course: Deemed availability of the Outage (Agenda by POWERGRID)

14.1. This has reference to agenda placed by POWERGRID in the 191st OCC meeting for the deemed availability of the Outage.

14.2. MS, NRPC asked POWERGRID to submit supporting documents which may ascertain that the change in the river course was so sudden that transmission licensee was not in a position to notice this aspect timely and take corrective action.

15. High Bus voltage at Anta (Agenda by NTPC)

15.1. NTPC has intimated vide email dated 03.02.2022 that at 03:51:52 hrs on 13.01.2022, bus voltage at Anta end reached to 241 KV. NTPC representative mentioned that bus voltage needs to be maintained within safe limit for System/Equipment safety.

15.2. NRLDC representative apprised forum that due to minimum load profile of Rajasthan during this duration, high bus voltage is observed at Anta end. Henceforth, NRLDC suggested Rajasthan for better load management during off-peak scenario.

15.3. NTPC representative informed the forum that there is no bus reactor at Anta and there may be space constraint issue which would be communicated by NTPC to NRLDC.

16. High Voltage issue in 220KV Bairasiul-Pong and 220KV Bairaisul-Jessore Transmission lines (Agenda by NHPC)

16.1. NHPC representative presented the matter to the forum.

16.2. CTUIL representative suggested that NHPC may plan for bus reactor in generating station switchyard to tackle this high voltage issue.

16.3. Further, NRLDC representative also supported the view of CTUIL representative in this regard.

16.4. MS, NRPC asked CUTIL to take up this matter as agenda for discussion in their next CMT meeting.

17. Follow up of decisions of 10th NPC meeting (Table Agenda 1)

17.1 NRPC representative apprised the forum that Uttarakhand has confirmed vide mail raise in the AUFLS settings by 0.2 Hz as agreed in in 47th TCC/49th NRPC meetings.

17.2 In the meeting (192nd OCC), states were requested to update the status and submit confirmation regarding implementation of decision of 47th TCC/49th NRPC to increase the AUFLS setting by 0.2Hz.

18. Issuance of Availability certificate of Fatehgarh Bhadla Transmission Limited (FBTL) (Table Agenda 2)

18.1 NRPC representative presented the following matter to the forum:

a. Fatehgarh Bhadla Transmission Limited (FBTL) is a SPV developed under TBCB for the purpose of establishing “Transmission System for Ultra Mega Solar Park in Fatehgarh.

b. All elements were completed, and COD was declared w.e.f. 31.07.2021 in line with the TSA terms.

c. Accordingly, documents regarding verification of the availability of the elements of FBTL was submitted to NRLDC.

d. However, NRLDC, vide letter dated 11.10.2021 asked for the basis on which the availability is to be verified. The existing Fatehgarh Bhadla Transmission Line is/will be looped in & looped out by POWERGRID both at tower no. 13 as well as tower no. 371, thereby connecting the existing network from Fatehgarh (PS) to Fatehgarh (II) PG.

e. The matter was further discussed with CEA and CTU in a joint meeting dated 28.12.2021 and the forum concurred that "Fatehgarh Bhadla Transmission line was deemed commissioned by Adani on 31.07.2021 and subsequently LILO work is being carried out by PGCIL, for which ATL cannot be held responsible. The issue was deliberated and CEA and CTU opined that M/S FBTL shall get deemed availability for the entire period i.e. since COD, irrespective of power flow, as the system was available and commissioned by FBTL on 31.07.2021"

f. However, NRLDC vide email dated 10.01.2022 asked ATL to submit the outage details of rearranged circuits for verification. The same was submitted to NRLDC on 25.01.2022.

18.2 MS, NRPC asked POWERGRID to submit the requisite details regarding the switching details of the bifurcated network as desired by NRLDC so that NRLDC can complete the work of outage verification. After the outage verification by NRLDC, the matter may be taken up by NRPC Sectt. for issuance of availability certificate.

19. Deemed availability of HVDC Vindhyachal Block-2 during proposed outage of Filter banks (B2Z11 & B2Z21) for retro-fitment work under ADD-CAP (Table Agenda 3)

19.1 NLDC representatives were not present in the meeting during discussion of this agenda item, and hence this issue could not be deliberated. It was decided that this agenda may be taken up in the next OCC.

20. Shifting of 33 kV Earth Electrode Mohindergarh - Kaithal Transmission line of M/s. Adani Transmission Limited (ATL) (Table Agenda 4)

20.1 ATL representative presented the matter before forum. ATL vide its letter dated 17.02.2022 ***(copy of letter enclosed as Annexure-A.II)*** raised following issues:

i. Pending charges of Rs. 38 Lakh from NHAI

ii. Certification of deemed generation by NRPC

iii. Stopping of vehicular traffic for one day by NHAI

20.2 NRLDC representative informed that TTC/ATC of Haryana during this duration would be 8500/7900 MW during this duration and TTC/ATC curtailment would be 1000-1200 MW due to outage of this line.

20.3 Haryana representative stated that its grid import during this duration would be around 4500MW.

20.4 MS, NRPC stated that as there will be no transmission constraint due to the outage of this line from 15.03.2022 for 5 days; hence, deemed availability can be certified by NRPC Sectt.

20.5 On the above cited issues following decisions were taken in the OCC forum:

i. Shutdown of HVDC was allowed from 15.03.2022 for 5 days

ii. Deemed availability would be certified by NRPC Sectt.

iii. NHAI would clear all pending payments of ATIL before availing shutdown

iv. NHAI would provide full security to ATIL, with help of local DM so that ATIL can complete diversion of its 33kV electrode line.

21. Lowering of Dul reservoir level for Permeation Curtain Grouting works at TRT Coffer Dyke as requested by Pakal Dul HEP (Table Agenda 5).

21.1 NHPC representative presented the matter before the forum. He mentioned that Pakal Dul Hydro Electric Project (1000 MW) is under construction on river Marusudar, a tributary of Chenab River, located at Kishtwar district of Union Territory of Jammu & Kashmir. The tail race /outlet of Pakal Dul Project opens in reservoir of Dulhasti Power Station. To carry out construction of outlet structure works, Pakal Dul had requested for lowering the Dul reservoir level to EL +-1239m i.e. upto MDDL of Dulhasti for execution of Permeation Curtain Grouting work at coffer dyke. Accordingly, Dulhasti Power Station has lowered the Dul reservoir level to EL+-1239 m from 07-Feb-2022.

21.2 NHPC representative also stated that maximum generation with present inflow that can be achieved is 80-90 MW at MDDL. In view of less inflow, the annual maintenance of units taking one unit at a time is also scheduled during this period.

21.3 Further, he mentioned that in view of above, two units of Dulhasti Power Station shall be available for generation and against DC of two units, maximum generation achievable by the power station would be 80-90 MW round the clock and 100MW during Peak period. The construction of outlet structure works of Pakal Dul HE Projects is likely to be completed by 1st Week of March'22.

21.4 The above cited information was noted by the OCC forum.

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

22. Grid Highlights for January 2022

NRLDC representative presented grid highlights for the month of Jan-2022:

- Maximum energy consumption of Northern Region was 1077.25 Mus on 19thJan'22 and it was 0.03 % lower than Jan' 2021 (1077.59 Mus 30thJan'21)

- Average energy consumption per day of Northern Region was 1007 Mus and it was 0.65 % higher than Jan'21 (1001 Mus per day)
- Maximum Demand met of Northern Region was 56213 MW met on 28thJan'22@ 11:00 hours (Based on data submitted by Constituents) as compared to 57345 MW met on 30thJan'21 @ 11:00 hours
- Total average per day energy production by Northern region was 851.59 Mus in the month of Jan'22 in comparison of 783.82 Mus in Jan'21.

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

Max Demand Met	**All Time High Record**		**Previous Record (upto Dec-21)**	
	Value (MW)	**Achieved on**	**Value (MW)**	**Achieved on**
Uttarakhand	2468	28.01.2022 09:00 hrs	2372	22.01-2021 08:00 hrs
Himachal Pradesh	2030	07.01.2022 10:00 hrs	1955	18.12.2021 08:30 hrs
J&K (UT)&Ladakh(UT)	2787	30.01.2022 19:00 hrs	2743	31.12.2021 19:00 hrs

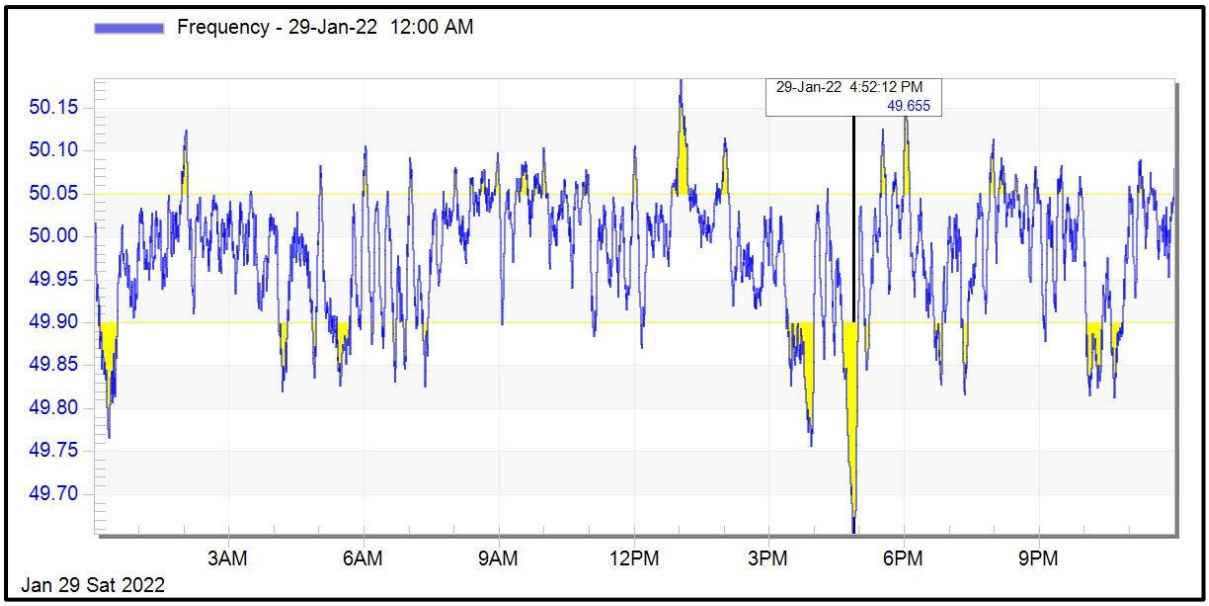
Energy Consumption	**All Time High Record**		**Previous Record (upto Dec-21)**	
	Value (MU)	**Achieved on**	**Value (MU)**	**Achieved on**
J&K (UT)&Ladakh (UT)	59.95	17.01.22	57.52	31.12.21

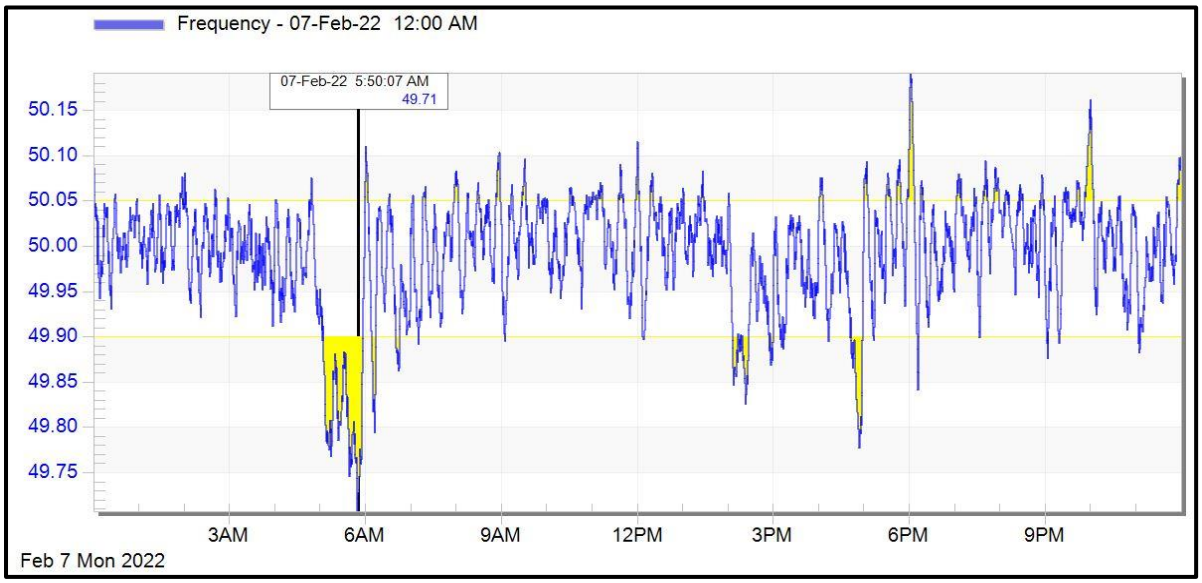
Frequency Data Comparison

Month	**Avg.Freq. (Hz)**	**Max.Freq. (Hz)**	**Min. Freq.(Hz)**	**<49.90 (%time)**	**49.90–50.05(%time)**	**>50.05 (%time)**
Jan' 22	50.00	50.28	49.65	5.8	75.7	18.5
Jan' 21	50.01	50.24	49.70	4.4	76.2	19.4

In Jan'22, Frequency remained within IEGC band for only 75.7 % of the time (0.5% of time lower than Jan'21). Emergent contingency events during such times such as large generation outage, could result in further drop in frequency and therefore, overdrawals below 49.90 Hz must be controlled quickly in order to keep system secure.

Frequency profile was very poor on 29th Jan 2022 and 7th Feb 2022 as shown below. Some of the NR states such as Rajasthan & UP had slight overdrawl in the range of 300-400MW during these instances.

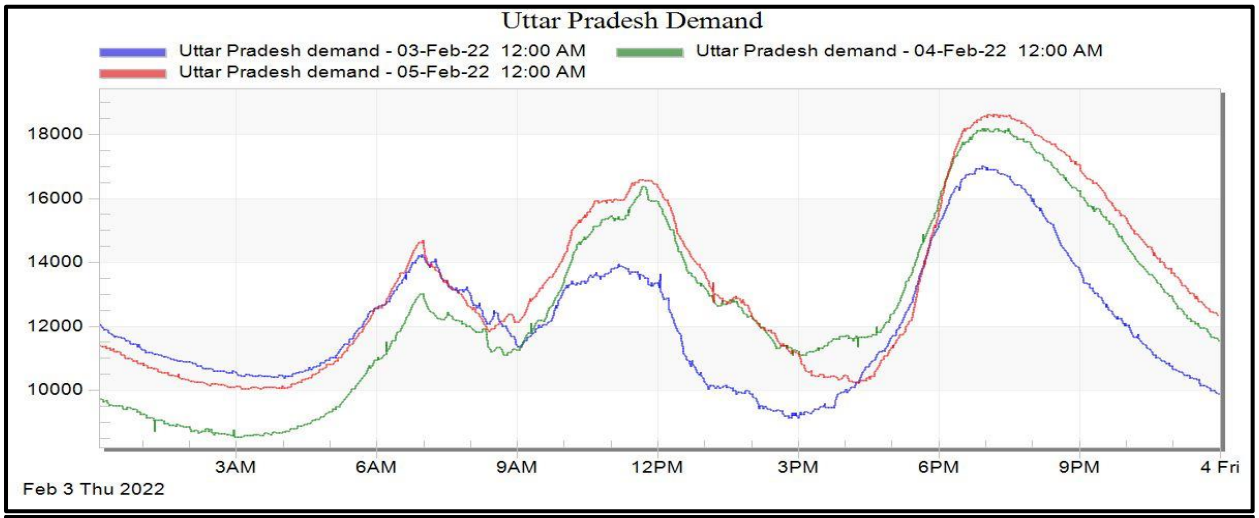


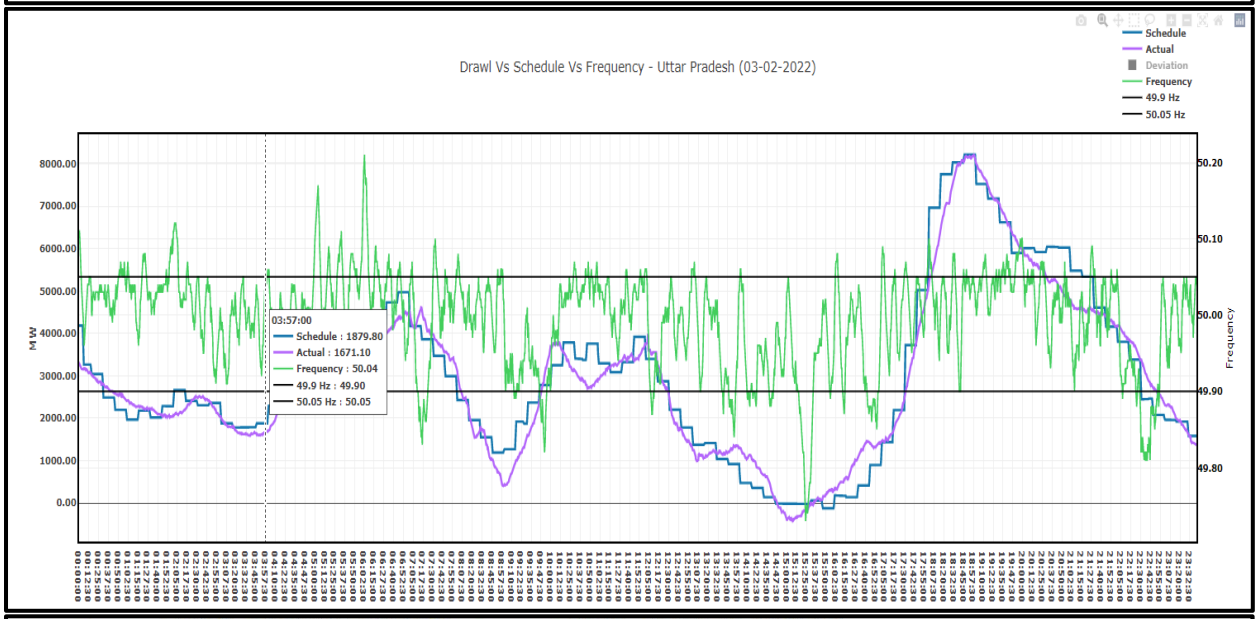


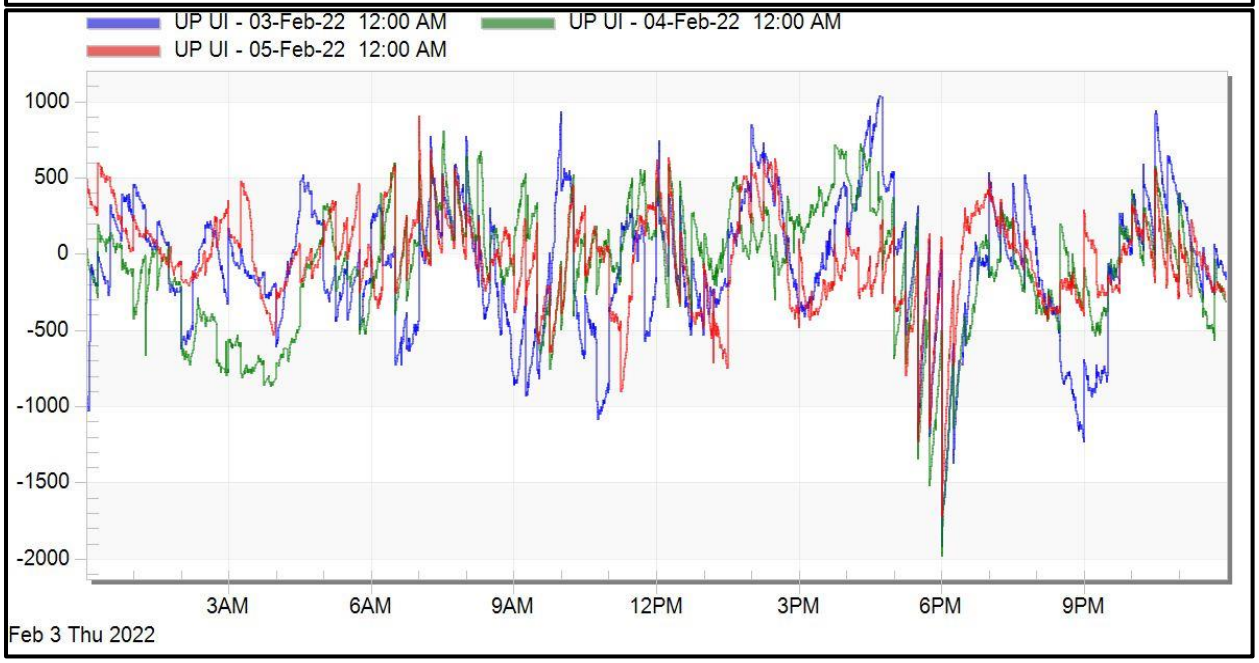
NRLDC representative stated that on some of the occasions of low frequency, few NR states had overdrawal contributing to low frequency operation. NRLDC has been continuously requesting all states to maintain its drawl within schedule during low frequency instances and also take necessary measures for revival of intrastate generating units. 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. All utilities were asked to ensure that RGMO/FGMO of generators under their control areas are in service and are responding as per frequency changes.

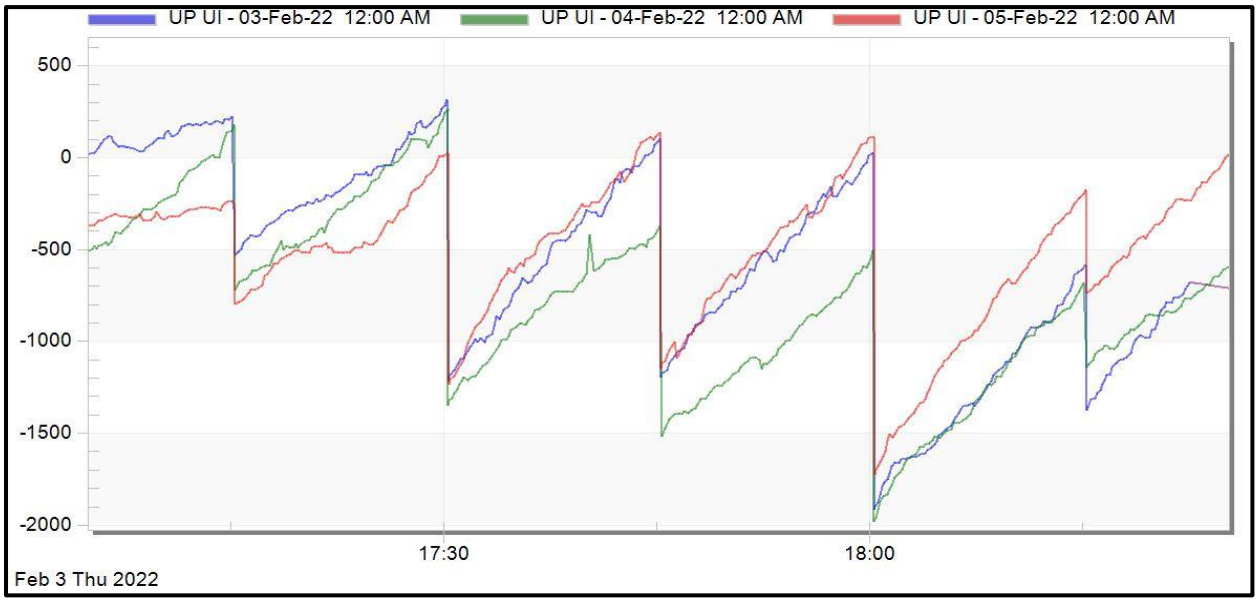
From the demand pattern of UP state, it can be observed that there is sharp rise in demand from 4pm-7pm during evening hours. To meet this ramp in demand of nearly 8000MW in 3 hours, it is observed that UP state is mostly dependent on the ISGS resources. Schedule and actual drawl of UP suggest that the schedule varies from 0-1000MW at 4pm to 8000-9000MW at 7pm. As a result of this, the deviation by UP

state control area also varies significantly and leads to situation wherein UI is upto 2000MW especially at 1800hrs leading to continuous spike in frequency.









In 192nd OCC meeting, UP SLDC representative informed that rostering is allowed from 7am-6pm, therefore chunk of load gets connected before 5pm. After 5pm, the demand rise is natural and it is always difficult to match load-generation for this sharp rise. Moreover, the day supply is generally given in two sets to avoid long unavailability of power. NRLDC representative once again requested that UP SLDC should explore more options for load shifting to day-time hours during solar generation time.

UP SLDC was once again advised to explore option of load staggering, minimize sudden load changeovers at hourly boundaries, utilize ramp from intrastate generators and ensure that RGMO/FGMO of generators under their control areas are in service and are responding as per frequency changes.

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

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

Although SLDCs are uploading the hourly load shedding figures of the previous day on the web-based reporting software of NRLDC the next day, but reason for the shedding or unserved demand at any hour is not segregated into the possible different categories.

UP, Haryana, Rajasthan, Punjab, Uttarakhand and HP are providing reasons whereas some other states such as Delhi, J&K and Chandigarh are not furnishing the reasons for load shedding. In view of the above, it is once again requested to kindly classify the reason of shedding in the detail sheet of hourly load shedding, in the daily

power supply report, before uploading it to the web-based reporting software on daily basis.

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

Uploading of Daily Power Supply Position Report of J&K(UT) on NRLDC Reporting Software:

Regulation 5.5.1(b) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, regarding the preparation of periodic reports by NLDC/RLDC/SLDC states that

"A daily report covering the performance of the regional grid shall be prepared by each RLDC based on the inputs received from SLDCs/Users and shall be put on its website. This report shall also cover wind and solar power generation and injection into the grid."

In compliance with the above regulation, a daily power supply position report for Northern Region is being prepared by the Northern Regional Load Despatch Centre based on the inputs received from SLDCs/ Users of the Northern Region.

NRLDC representative stated that presently the Power supply position in respect of J&K (UT) is received through email with a delay of 24 hrs to 72 hrs. Due to receipt of delayed input from J&K(UT), Northern Region Power supply position report is prepared considering ISTS end SCADA data of J&K(UT) and Ladakh (UT) as this report is time critical, and required to be submitted to NLDC by 06:00 Hrs every day. However, at a later date when the power supply position is actually received from J&K(UT) it is seen that there is a significant difference between the power supply position report prepared by NRLDC and J&K (UT)(Annexure-B.I of agenda). This issue was also communicated with SLDC Jammu vide NRLDC letter dated 20.10.2021 (Annexure-B.II of agenda)

Power supply position report is one of the key reports of the region and sanity and integrity of its data is of paramount importance. The report is also scrutinized by Hon'ble Minister of Power and New & Renewable Energy and based on it, many other reports are prepared and shared with MoP, CEA, NLDC and other power sector utilities.

In view of the above, it was requested to ensure that the daily power supply report in respect of J&K(UT) and Ladakh (UT) is positively submitted to the web-based reporting software by 03:00 AM on daily basis. J&K(UT) and Ladakh(UT) representatives were not available for comments.

24. MVAR support from generators

NRLDC representative stated that reactive power response of generating stations is being regularly discussed in OCC meetings.

Reactive power response in respect of MVAr vs Voltage for **past 30 days (09.01.2022 - 08.02.2022)** as per NRLDC SCADA data is described below. Based on available data, it is observed that there are margins available as per capability curves for most of the generating stations. In addition, telemetry (sign and magnitude of MVAR) of various state generating station is yet to be corrected. Generating units/ plants for which improvement in MVAR performance was required have been highlighted in red.

S.No.	Station	Unit No.	Capacity	Geographical location	MVAR capacity as per capability curve	MVAR performance (-) Absorption (+) Generation	Voltage absorption above (in KV)
1	Dadri NTPC	1	490	Delhi-NCR	-147 to 294	-150 to 50	410
		2	490		-147 to 294	-150 to 50	410
2	Singrauli NTPC	1	200	UP	-60 to 120	-20 to 10	406
		2	200		-60 to 120	-25 to 10	404
		3	200		-60 to 120	-10 to 25	408
		4	200		-60 to 120	-40 to 10	402
		5	200		-60 to 120	-20 to 0	402
		6	500		-150 to 300	-80 to 0	400
		7	500		-150 to 300	-60 to 0	400
3	Rihand NTPC	1	500	UP	-150 to 300	-90 to 20	404
		2	500		-150 to 300	-85 to 20	403
		3	500		-150 to 300	-150 to -20	400
		4	500		-150 to 300	-80 to 40	406
4	Kalisindh RS	1	600	Rajasthan	-180 to 360	Voltage data issue	
		2	600		-180 to 360		
5	Anpara C UP	1	600	UP	-180 to 360	-100 to 100	765
		2	600		-180 to 360	-100 to 40	765
6	TalwandiSaboo PB	1	660	Punjab	-198 to 396	-200 to -50	410
		2	660		-198 to 396	-200 to -50	410
		3	660		-198 to 396	-200 to -50	410
7	Kawai RS	1	660	Rajasthan	-198 to 396	-100 to 50	402

		2	660		-198 to 396	-100 to 20	402
8	IGSTPP Jhajjar	1	500	Haryana	-150 to 300	-130 to 30	410
		2	500		-150 to 300	-130 to 30	410
		3	500		-150 to 300	-	-
9	Rajpura (NPL)	1	700	Punjab	-210 to 420	data error (sign reversal) however adequate MVAR absorption	
		2	700		-210 to 420		
10	MGTPS	1	660	Haryana	-198 to 396	-150 to -40	400
		2	660		-198 to 396	-160 to 20	400
11	Bawana	1	216	Delhi-NCR	-65 to 130	-	-
		2	216		-65 to 130	-60 to 40	410
		3	216		-65 to 130	-70 to 0	405
		4	216		-65 to 130	-	-
		5	253		-65 to 130	-40 to 60	415
		6	253		-65 to 130	-40 to 40	410
12	Bara PPGCL	1	660	UP	-198 to 396	-80 to 50	765
		2	660		-198 to 396	-80 to 50	765
		3	660		-198 to 396	-100 to 50	762
13	Lalitpur TPS	1	660	UP	-198 to 396	-20 to 170	775, 785
		2	660		-198 to 396	0 to 150	775, 785
		3	660		-198 to 396	-50 to 180	775, 780
14	Anpara D UP	1	500	UP	-150 to 300	-150 to 30	765
		2	500		-150 to 300	-150 to 30	765
15	Chhabra TPS	1	250	Rajasthan	-75 to 150	-50 to 20	405
		2	250		-75 to 150	-50 to 20	405
		3	250		-75 to 150	-	-
		4	250		-75 to 150	-	-
		5	660		-198 to 396	-70 to 100	410
		6	660		-198 to 396	-70 to 70	410

In 192nd OCC meeting following was discussed:

- NRLDC has sent communication to IGSTPP Jhajjar, Delhi SLDC (Bawana), UP SLDC (Bara and Lalitpur) to improve their reactive power performance.
- MVAR performance improvement required in Singrauli TPS Unit 3, Rihand TPS Unit 4, Bawana generating station.
- Rajasthan SLDC representative was asked to look into the telemetry issues of Kalisindh TPS. Rajasthan SLDC representative informed that the issue has been attended. Rajasthan SLDC was asked to get their SCADA team in touch with NRLDC team and get the issue resolved.

- Kawai representative informed that at Kawai TPS on several occasions bus reactor is kept in service even in case where machine is generating MVAR to provide reactive power support. It was requested that bus reactors be switched off for voltages less than 409kV and control may be provided to Kawai station. Rajasthan SLDC representative stated that outage code is issued on suo-motto basis by NRLDC on Rajasthan's request and grid conditions. However, during day-time with increasing demand and solar generation, low voltages are observed in several pockets and accordingly number of codes are requested/issued. NRLDC representative stated that if possible Rajasthan may request code for switching of bus reactor at Kawai slightly earlier than other codes based on anticipated voltage profile and accordingly the request would be processed by NRLDC control room.
- Delhi SLDC representative was not available for comments on performance of CCGT-Bawana.
- Rajpura TPS was advised to resolve the issue of MVAr sign change at the earliest.
- NRLDC representative stated that 330MVAR line reactor was charged at Lalitpur TPS on 5th Feb 2022. Since the charging of bus reactor, bus voltage has reduced by 8-10kV whereas MVAR generation by Lalitpur units has increased by around 100MVA each. Lalitpur representative stated that after charging new bus reactor, voltages are now generally within limits. It was also informed that no issue of high/low voltage is observed presently in Generator transformer and auxiliary transformer.
- States shall also develop MVAr vs voltage plots for generators under their jurisdiction. This would also help to improve telemetry of MVAr data and eventually, more reliable MVArvs voltage plots will be available and the generators can be instructed accordingly.

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. Generating stations need to make sure that the AVR settings and GT tap positions are optimized to achieve the reactive power performance as per grid requirements. It was also requested to share these details with NRLDC.

MVAR performance of Solar/ Wind plants

As already discussed in TCC/NRPC meeting, subgroup was formed at NRPC level to look after RE integration to take up the issues at their level. In 189th OCC meeting, it was discussed 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. 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.

In 190th OCC meeting, it was informed that SRLDC has issued the report which is available @ *https://srldc.in/UploadFiles/NewsAndUpdate/Draft%20Report%20on%20Night%20*

Mode%20Operation%20(Trial)%20of%20PV%20Inverters.pdf. The key points from SRLDC report were presented in the meeting. NRLDC and NRPC representatives stated that separate meeting may be called with solar ISGS by sub-group formed at NRPC level so that such capability of NR plants may be discussed and accordingly further course of action may be decided.

In 191 OCC meeting, it was decided that the meeting may be called by NRLDC in Feb 2022. Accordingly, it is proposed to carry out the meeting on 23.02.2022 or 24.02.2022.

In 192nd OCC meeting, MS NRPC stated that the feedback has been submitted to CERC by SRLDC. The issue was also highlighted by NRPC in meeting of RPCs with CERC and CERC was also requested to formulate suitable procedure for commercial implications in this case. However, to discuss the recent tripping of Jan/Feb 2022 in Fatehgarh-II complex, meeting may be scheduled after receipt of reports from Adani and Renew to have in depth discussion and analysis of shortcomings and corrective actions required to avoid such tripping in future.

25. TTC/ATC of state control areas for winter 2021-22 and Draft GNA regulations notified by CERC

Hon'ble CERC had notified draft GNA Regulations and posted on CERC website on 16th Dec 2021 for stakeholders' comments. These draft regulations aim to move towards a more market friendly approach in open access rather than undertaking construction of transmission system only if there is firm users requisition such construction. Under this mechanism, assessment of ATC/TTC of state control area becomes all the more important.

18.1 (C) GNA for a State including intra-State entity(ies) as per clause (b) of this Regulation shall be deemed to have been granted to STU of that State on behalf of such intra-State entities and shall remain valid until relinquished in accordance with these regulations.

CERC (Measures to relieve congestion in real-time operation) Regulations, 2009 regulation clause 3(2) states that:

"*TTC, ATC, and TRM along with the details of basis of calculations, including assumptions if any, shall be put up on the website of NLDC and RLDC at least three months in advance. The specific constraints indicated by the study would also be put on the website."*

It is observed that some states are still not declaring the TTA/ATC for the import and export of power. Further, there are some states whose ATC is less than the calculated deemed GNA quantum mentioned in the draft regulation. The state wise GNA, LTA and MTOA, ATC figures are attached as Annexure-B.III of agenda.

OCC advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement. States were also requested to regularly provide update regarding the upcoming transmission elements which would improve import capability of respective state control area.

From last 2-3 OCC meetings, it was discussed that most of the NR states except J&K U/T and Ladakh U/T and Chandigarh are sharing basecase and ATC/TTC assessment with NRLDC. SLDCs are once again requested to go through the tentative ATC/TTC limits for March 2022 (Annexure-B.IV of agenda) and provide comments. If no comments are received, these limits will be assumed confirmed and uploaded on NLDC website. SLDCs are also requested to upload these limits in their respective websites.

Punjab

Punjab SLDC was requested to ensure sufficient intrastate generation on bar during winter/ spring months, which would help in providing the required MVAR absorption to limit high voltages during winter months. Punjab was requested to provide update on the following works which are likely to enhance ATC/TTC of Punjab state control area:

- Augmentation of 1 No. 315 MVA ICT with 500 MVA ICT at Ludhiana by shifting of 500 MVA ICT lying spare at Malerkotla to Ludhiana *(to be updated).*
- Commissioning of new 500MVA ICT at Rajpura *(expected by May'2022)*.
- Augmentation of Kartarpur-Jalandhar PGCIL line with HTLS conductor to make 2 No. 315 MVA ICTs N-1 complaint at Nakodar.the loading of these ICTs to be controlled by shifting of Kartarpur load to Jalandhar PGCIL (presently running from Nakodar ICTs) (*expected by Apr'2022*).

As discussed in 191 OCC meeting, NRLDC representative stated that the period from June-Sep is associated with very high demand in Punjab state control area and Northern region. The import capability of state is also limited due to major transmission constraints such as 400/220kV ICTs at Rajpura, Nakodar, Ludhiana and several 220kV lines. At the time of this very high demand, it is easy to understand that maximum internal generation should be available to help in meeting demand safely. However, due to forced outage of generating units especially at TalwandiSaboo generating units, there is major issue in meeting demand in safe and secure manner. In 2021, there were numerous forced outages of TalwandiSaboo units (each 660MW capacity). Even in the lean season during Jan-Feb 2022, there have been numerous outages of TalwandiSaboo units including those due to coal shortage issues.

S. No	Station	Unit No	Capacity MW	Reason(s)	Outage		Revival	
					Date	Time	Date	Time
1	Talwandi Sabo TPS	1	660	ABNORMAL SOUND IN BOILER	07-02-2022	22:00	-	-
2	Talwandi Sabo TPS	1	660	Fuel Shortage Coal Shortage	10-01-2022	20:45	16-01-2022	05:28
3	Talwandi Sabo TPS	2	660	ABNORMAL SOUND IN BOILER	18-01-2022	17:03	22-01-2022	04:36
4	Talwandi Sabo TPS	1	660	ABNORMAL SOUND IN BOILER	28-01-2022	07:33	01-02-2022	14:19

5	Talwandi Sabo TPS	2	660	Coal Shortage	05-02-2022	22:16	08-02-2022	09:15

In 191st OCC meeting, Punjab SLDC was asked to take up the matter on top priority with TSPL and try and ensure maximum generation capacity availability during peak demand season. Punjab SLDC representative stated that the matter has been taken up on priority however problems are still persisting with TSPL units. NRLDC representative also highlighted that due to frequent outages of TalwandiSaboo units, frequent ATC/TTC revisions need to be carried out, moreover since the revisions only become effective after some time blocks, it leads to a situation when Punjab faces big challenge in safely meeting the demand without over drawing. To overcome these issues, along with ensuring availability of TalwandiSaboo units, other generating units should also be available along with sufficient fuel stock and it is also essential that Punjab takes necessary steps to enhance their ATC/TTC limits before paddy 2022

NRLDC representative stated that the communication from Punjab with TSPL should be shared with NRLDC/NRPC also.

UP

SPS for Sohawal and Lucknow to be expedited.

In 191 OCC meeting, UP SLDC representative stated that:

- Exploring possibility of shifting SPS from Bareilly(UP) to Sohawal.
- Constraint at 400/220kV Lucknow(PG) is likely to be relieved with full commissioning of 400/220kV Jehta S/s.

Along with above,

- Healthiness of SPS of Anpara-Unnao complex to be ensured. Mock-testing may be carried out before summer season.
- Shutdown period of 765kV AnparaD-Unnao to be minimized
- Status of 765/400kV Obra-C including underlying network may be furnished.

UP SLDC informed the following:

- *No progress on works for SPS of Sohawal(PG). NRPC and NRLDC expressed concern on the same.*
- *Mock-testing would be carried out in Anpara-Unnao complex.*

Rajasthan

Rajasthan had shared ATC/TTC calculations with NRLDC on 22.10.2021. On 28.10.2021, NRLDC has shared their observations on basecase as well as simulation studies carried out by Rajasthan.

Rajasthan was requested to share the revised simulation studies with NRLDC alongwith details of bus-split, other operational changes in system.Rajasthan SLDC was asked 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.

Rajasthan SLDC had shared latest basecase & ATC/TTC assessment with NRLDC on 18.02.2022. Bus split has been done at 220kV Dholpur and Raps-C.

Delhi

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

In 190th OCC meeting, Delhi SLDC representative stated that the limits would be reassessed for next summer season shortly with commissioning of 400/220kV Dwarka substation and accordingly revised ATC/TTC limits would be uploaded on website. NRLDC representative suggested that present ATC/TTC limits may be uploaded on SLDC website and with commissioning of 400/220kV Dwarkasubstation, revised ATC/TTC may be uploaded.

Delhi SLDC was asked to implement SPS at Mundka and Bamnoli to save supercritical loads under N-1 contingency of one ICT. Delhi representative stated SPS at Mundkawould be implemented before next summer season.

Delhi SLDC was asked to provide update on the implementation of SPS at 400/220kV Mundka and Bamnauli substations and also revival status of 400/220kV Mundka ICTs. Delhi representative was not present in the meeting.

Haryana

Haryana SLDC is once again requested to expedite implementation of SPS and ICT capacity augmentation at 400/220kV Deepalpur and Kurukshetra (PG) to enhance their ATC/TTC limits at the earliest***. Haryana SLDC informed SPS would be implemented at Deepalpur by Apr'2022. For Kurukshetra, they will take up the matter with POWERGRID.***

HP

HP has started sharing its ATC assessment since last 3 months in consultation with NRLDC. It was discussed that mostly intrastate constraints were highlighted by HP and the studies were done for lesser import values. HP was advised to assess possible tie-line/ICT constraints with import close to real-time values. One to one meeting was organized on 03.12.2021 between NRLDC and HP SLDC officials to overcome the challenges being faced by SLDC in ATC/TTC assessment and other issues in PSSe.

Uttarakhand

Uttarakhand has also shared its ATC assessment with NRLDC for winter 2021-22.

J&K

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

Constraints observed as per real-time:

J&K

- 400/220kV Amargarh ICTs
- High loading of 220kV lines from Wagoora & Sambha**.**

HP

- High loading of 400/220kV Nallagarh ICTs, 220kV Nallagarh-Upernangal D/C and 220kV Hamirpur-Hamirpur D/C

Uttarakhand

- High loading of 400/220kV Kashipur ICTs
- High loading of 220kV Roorkee-Roorkee, CBGanj-Pantanagar

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

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

Since from March onwards, demand of most of the NR states starts increasing, it was requested that the revised ATC/TTC limits for summer2022 along with anticipated generation scenario may be shared with NRLDC well in advance**.**

Plot suggesting loading above n-1 contingency limit and ATC are attached as Annexure-B.V of agenda. It was requested that SLDCs may ensure that loading of ICTs and lines are below their N-1 contingency limits. While requisitioning power from various sources, states should take care to limit their scheduled drawl as well as actual drawl in real time within the Available Transfer Capability (ATC) limits assessed by SLDC and NRLDC.

26. Grid operation related issues

(i) Generation assessment for opening of bus coupler at Dadri TPS

NRLDC representative stated that 400 kV bus at Dadri is split into two portions in order to contain the short circuit level. Split bus operation is not the desirable solution. It reduces reliability of the power station as a whole and also causes heavy loading of the connected lines & ICTs on one section and skewed power distribution. In addition, the section with lesser short circuit level experiences high voltage during off-peak periods, with no means for voltage control.

On one section (I):

• Thermal units of stage-I connected via 3*500MVA ICTs

• 400kV lines such as Panipat ckt1 and ckt 2, Muradnagar New and Harshvihar ckt1

On other section (II):

• Gas Plant units connected via 2*500MVA ICTs and thermal units of stage-II

• HVDC interconnectors

• 400kV lines such as Mandola ckt 1 and 2 having series line reactors at Mandola end

• 400kV lines such as Kaithal, Gr. Noida, Maharani bagh, Harshvihar ckt2

As per simulation studies carried out on All India basecase for summer 2022 scenario, it is observed that:

	Generation (MW)				**3-phase Fault level (kA)**		
Case	**DadriStg.I**	**DadriStg.II**	**Dadri gas**	**Total Dadri generation**	**Dadri Section-I**	**Dadri Section-II**	**Dadri w/o bus-split**
1	0	0	0	0	15.05	31.06	36.35
2	0	460	0	460	15.32	34.84	39.6
3	0	920	0	920	15.57	38.11	42.86
4	380	0	0	380	17.41	32.25	38.72
5	380	0	200	580	17.58	33.97	40.45
6	760	0	0	760	19.27	32.66	40.64
7	0	0	200	200	15.21	33.32	38.07
8	0	0	600	600	15.43	35.74	40.49
9	760	920	800	2480	19.82	42.89	50.77

Almost similar results were observed in All India March 2022 peak basecase. Following are major observations:

- Since section-II is connected with Dadri gas, Dadri Stage-II and HVDC, it has much higher fault level than section-I.
- Generally, when total generation at Dadri is greater than 500-600MW, 3-phase fault current is more than 40kA.
- To ensure limited fault current levels, it is suggested that bus sectionaliser at Dadri TPS may be opened when generation at Dadri generating station (including Stg. I, Stg.II and Gas) is higher than 500MW.

- Upon discussion and agreement in OCC meeting, same would be shared with NRLDC and Dadri control rooms and followed in real-time.

In 192nd OCC meeting, MS NRPC enquired whether bus coupler needs to be closed/opened as per real-time condition. NRLDC representative informed that generally if more than one unit of 490MW is on bar, then bus coupler would be opened. NTPC representative stated they would respond after consulting the generating station. POWERGRID representative informed that commissioning of series reactors is planned only in Bhiwani(PG) in Delhi/NCR area to limit the fault current in Delhi ring.

(ii) Outage of 400kV Samba-Amargarh beyond approved period

NRLDC representative highlighted the following issues related to outage of 400kV Samba-Amargarh:

- Jammu Kashmir is experiencing peak demand due to winter season (~3000MW) and 400 Amargarh-Samba D/C is vital line for supplying power to JK Valley.
- INDIGRID needs to make sure that in future shutdown are applied in NRPC portal within the approved timelines as per NRPC approved outage procedure because some time is required by NRLDC also to carry out studies and assess the possibility of facilitating shutdowns in real-time.
- Outage of the line was extended beyond the approved timelines which suggests man-days required for execution for work were not adequately assessed by INDIGRID. Such actions need to be avoided in future and if required additional gangs to be deployed to make sure that works are executed within approved timelines.

INDIGRID representative informed the following:

- The matter was urgently recommended by CEA due to emergent nature of work.
- Adequate manpower was also planned, however, due to adverse weather conditions work was slightly delayed.
- INDIGRID is thankful to NRPC, NRLDC, POWERGRID for coordinating and allowing this shutdown during such critical times.

(iii) Ensuring PLCC protection in 220kV intrastate lines

NRLDC has received the following first-time charging applications:

1. ID-1118318: LILO of 220 kV Agra (PG)-Firozabad line at 220 kV Tundla (UP)
2. ID-1118405: LILO of 220 kV Gorakhpur (PG)-Bansi line at 220 kV Dulhipar (UP)
3. ID-1118431: LILO of 220 kV Sohawal (PG)-New Tanda line at 220 kV Ayodhya (UP)
4. ID-1118443: LILO of 220 kV Shahjahanpur (UP)-Sitapur (UP) line at 220 kV Shahjahanpur (PG)

From the documents submitted, it is observed that PLCC/OPGW communication work is not commissioned in the above elements. In this regard, it is to be mentioned that as per Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010, Section 43 (4) (e) quoted below, complete commissioning of PLCC equipment is to be done before charging of the transmission lines:

"*Power line carrier communication (PLCC) equipment complete for speech transmission, line protection, and data channels shall be provided on each transmission line of voltage rating 132kV and higher..."*

UPPTCL representative confirmed the commissioning work of PLCC/OPGW communication for the abovementioned elements is in progress and charging code would be requested only after completion of all works. NRLDC representative stated that UPPTCL and all other transmission utilities should make sure to complete all mandatory requirements including installation of PLCC in line before applying for charging code in future to avoid unnecessary delays.

(iv) Long outage of transmission elements/ generating units

Reasons and revival date for elements under long outage are being discussed regularly in OCC meetings. Updated status of these elements from last OCC meeting is attached as **Annexure-B.I**.

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

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

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

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

In line with the above decisions, all utilities are requested to share the information about transmission elements/ generating units which are expected to be first time charged in the next 45 days.

UPPTCL informed that following elements are to be charged within the next 45 days:

1. LILO of 765 kV Mainpuri- Greater noida Line at Jawaharpur TPS.

2. LILO of 220 kV Sohawal (PG) - New tanda line at 220 kV Ayodhaya.

3. LILO of 220 kV Gorakhpur (PG)- Bansi line at 220 kV Dulhipar.

4. 765 kV S/C Ghatampur TPS - Hapur line(including 330 MVAr line reactor at Hapur end)

5. 125 MVAR bus reactor at 400 kV mau.

6. 3*110 MVAR bus reactor-II at 765 kV S/s Lalitpur TPS

Constituents are requested to submit the Annexures- B6, B7 & B8 (formats enclosed) duly signed by the incharge on a letter head before charging of elements in following cases:

Annexure B6: Undertaking / Self Certification by Owner under Regulation 43(7) of CEA (Measures relating to safety and electric supply) regulations 2010 **For Replacement of Electrical installations due to Failure**.

Annexure B7: Undertaking / Self Certification by Owner under Regulation 43(7) of CEA (Measures relating to safety and electric supply) regulations 2010 **For Diversion of TL / Tower Height modification.**

Annexure B8: Undertaking / Self Certification by Owner under Regulation 43(7) of CEA (Measures relating to safety and electric supply) regulations 2010 **For Anti-Theft Charging.**

The above Annexures (Annexure-B.VII of agenda) are to be submitted along with the CEA RIO safety clearance certificate. OCC noted the same.

(vi) SPS Implementation at Bhadla (PG)

The SPS logic decided in the 45th TCC meeting and approved in the 48th NRPC meeting. The SPS logic decided in the 45th TCC meeting and approved in the 48th NRPC meeting was explained to OCC members in 181st OCC meeting. POWERGRID representative had intimated that QR for the SPS tender has already been finalized and NIT may be floated within next two weeks.

181 OCC: QR finalized, tender may be floated in next week

183 OCC: QR approved, tender documents being prepared

186 OCC: Tendering stage, likely to be awarded in Sep'2021

In 187th OCC meeting, POWERGRID representative stated that work is still in tendering stage and the bid opening is scheduled on 23.09.2021.

189th OCC meeting, POWERGRID representative stated that one bid has been received for the work. However, it is new party so evaluation is under process. On enquiry from NRLDC representative, it was stated that order is likely to be placed before next OCC meeting. OCC once again expressed concern on the slow progress of the work.

190th OCC meeting, POWERGRID representative stated that two bids have been received and price bid will be opened shortly and the contract is likely to be awarded in January 2021.

191st OCC meeting, POWERGRID representative stated that the works are going on as per schedule and contract is likely to be awarded in January 2021.

192nd OCC meeting, POWERGRID representative informed that contract work has been awarded with delivery period of six months. POWERGRID representative informed that STATCOM in Bhadla/Bikaner/Fatehgarh complex is likely to be commissioned by Apr'2023.

(vii) 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.

In 188th OCC meeting, 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.

In 189th OCC meeting, MS NRPC stated that NRLDC may request all SLDCs to confirm the status via email. Based on the feedback received, issue may be discussed in next OCC meeting.

Accordingly, an email was circulated to respective SLDCs on 10.12.2021. However, response from SLDCs is yet to be received.

In 190th OCC meeting, Punjab SLDC representative informed that data calculation from SLDC end data is complete and display for difference between the values from NRLDC end and Punjab SLDC end data is also available at SLDC control room. Punjab SLDC will share screen shot of display available at their control center with NRLDC.

Haryana SLDC representative stated that data from some stations such as 220kV Bawal is not available at SLDC. It was also informed that drawl data is being monitored from both NRLDC and HVPN end data. Data from 56 points out of 101 points of Haryana end data is telemetered while for remaining data they are using NRLDC end data only due to telemetry issues and other issues such as 220/66kV station being BBMB station, 66kV data is not available.

Uttarakhand SLDC representative stated that at 2-3 stations, RTU is faulty and replacement work is being carried out which would ensure availability of SLDC end data for drawl calculation. Till the replacement work, they are relying on NRLDC end data. NRLDC representative asked Uttarakhand to expedite replacement of faulty RTUs and ensure drawl data availability from SLDC end data also.

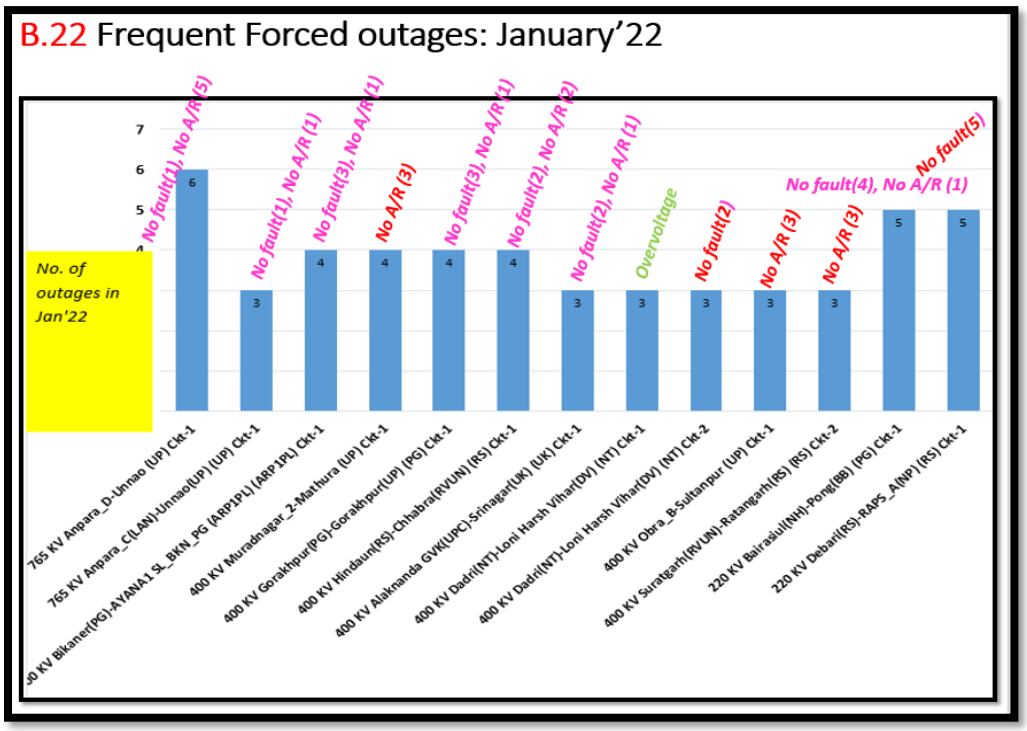
CGM(SO) NRLDC had stated that SLDCs should maintain separate lists of points from which both end or single end data is available and regularly monitor all these points. They should also take necessary actions for the points for which telemetry issues are observed.

SLDCs were requested to provide update on the agenda point. However, no update was received.

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

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

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	765 KV Anpara_D-Unnao (UP) Ckt-1	6	UP
2	765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1	3	UP
3	400 KV Bikaner(PG)-AYANA1 SL_BKN_PG (ARP1PL) (ARP1PL) Ckt-1	4	POWERGRID/ARP1PL
4	400 KV Muradnagar_2-Mathura (UP) Ckt-1	4	UP
5	400 KV Gorakhpur(PG)-Gorakhpur(UP) (PG) Ckt-1	4	POWERGRID/UP
6	400 KV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1	4	Rajasthan
7	400 KV Alaknanda GVK(UPC)-Srinagar(UK) (UK) Ckt-1	3	Uttarakhand/UP
8	400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-1	3	NTPC/Delhi
9	400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-2	3	NTPC/Delhi
10	400 KV Obra_B-Sultanpur (UP) Ckt-1	3	UP
11	400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-2	3	Rajasthan
12	220 KV Bairasiul(NH)-Pong(BB) (PG) Ckt-1	5	NHPC/BBMB
13	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	5	NPCIL/Rajasthan



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

Discussion during the meeting:

- **765 KV Anpara_D-Unnao (UP) Ckt-1:** UPPTCL representative informed that there was some problem near Raibareilly due to crossover which was already resolved. He further informed that this line was taken under shutdown and planned to be LILOed at Obra substation. He informed that substation are instructed to complete the LILO work and charge the line only after thorough checking of Corridor and line protection at their end.
- **765 KV Anpara_C(LAN)-Unnao(UP) (UP) Ckt-1:** UPPTCL representative informed that on 19th January, 2022 tripping occurred due to VT fuse fail at Unnao end. Also, after change of A/R panel at Anpara_C end, it was found that there was a problem of DT received at Unnao end during A/R operation in this line, due to which A/R was not operating in this line and tripping on 15th and 22nd January, 2022 occurred due to transient fault. He further informed that issue has already been taken and resolved by Anpara_C and now A/R will operate in this line.
- **400 KV Muradnagar_2-Mathura (UP) Ckt-1:** UPPTCL representative informed that during tripping A/R operated in this line and line tripped due to persistent fault. He further informed that PID test was done in this line and it was observed that insulators are damaged in some locations. The insulator replacement work is already under process and is expected to be completed soon.
- **400 KV Obra_B-Sultanpur (UP) Ckt-1:** UPPTCL representative informed that tripping on 5th January, 2022 occurred due to GI incident at Sultanpur

substation. Tripping on 19th and 21st January 2022 occurred due to transient fault and A/R successful at Sultanpur end but there was problem in Zone 2 setting at Obra end due to which A/R was not operating at Obra end. He informed that settings at Obra end was changed and A/R issue has been resolved.

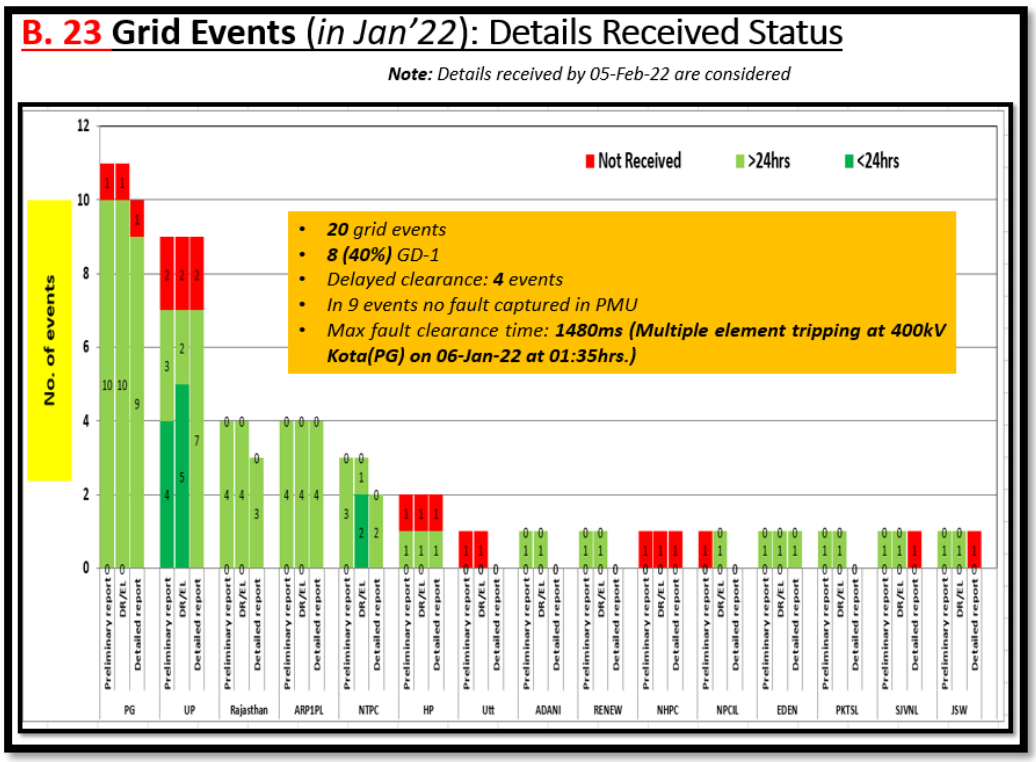
- **400KV Alaknanda GVK (UPC)-Srinagar (UK) (UK) Ckt-1:** UPPTCL representative informed that tripping on 7th, 8th and 12th January, 2022 occurred due to fault at Srinagar end. PTCUL representative is not present in the meeting for any comment on the tripping.
- **400 KV Gorakhpur(PG)-Gorakhpur(UP) (PG) Ckt-1:** UPPTCL representative informed that tripping on 9th & 10th January, 2022 occurred due to faulty control cable of Main Circuit breaker. On 10th January, 2022 line charged through transfer Breaker to avoid tripping due to faulty cable. During changeover, A/R function was not enabled at TCB due to which line tripped on 15th January, 2022 due to transient fault. He further informed that line has now been charged through Main CB and A/R issue is resolved.
- **400 KV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1:** Rajasthan representative informed that on 06th January, 2022 multiple times tripping occurred in this line and after patrolling heavy bird beet was found at some location, which was cleared and line charged after taking corrective actions.
- **400 KV Suratgarh (RVUN)-Ratangarh (RS) (RS) Ckt-2:** Rajasthan representative informed that multiple times tripping occurred in this line due to transient fault and A/R was in off condition in this line. He further informed that A/R is functional at Ratangarh end and at Suratgarh end relay required for A/R function to be enabled is under process of bidding. NRLDC representative suggested to ensure healthiness/ in service of A/R in all 220 kV and above transmission lines in compliance to CEA Grid Standards. Rajasthan representative agreed for t/R he same.
- **220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1:** Rajasthan representative informed that tripping on 16th January, 2022 occurred due to disc puncture and other four tripping occurred due to transient fault. He further informed that A/R was in off condition in this line due to connection of RAPS generation. He said that RAPS informed that line CVT is not available at their end and due to limitation of Generator it is not possible to enable A/R operation at RAPS end. RAPS representative was not available in the meeting for any comment. NRLDC representative suggested to ensure healthiness/ in service of A/R in all 220 kV and above transmission lines in compliance to CEA Grid Standards. Rajasthan representative agreed for the same.
- **400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-1 & 400 KV Dadri(NT)-Loni Harsh Vihar (DV) (NT) Ckt-2:** NTPC representative informed that multiple tripping occurred in these line due to overvoltage and kite thread.

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

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

28. Multiple elements tripping events in Northern region in the month of Jan'22

A total of **20** grid events occurred in the month of Jan'22 of which **8** 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 detailed report received by NRLDC till 05-February-2022 is attached at Annexure-B.IX of the Agenda.



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

Maximum Fault Duration observed is **1480ms** in the event of multiple element tripping at 400kV Kota(PG) on 06-Jan-22 at 01:35hrs.)

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **4** events out of **20** grid events occurred in the month. In 9 number of events, fault signature couldn't be captured from PMU data.

NRLDC representative stated that in the event of tripping at 400kV Kota(PG) on 06-Jan-22 at 01:35hrs delayed clearance of around 1480ms is observed in the system. He further informed that as per report received from POWERGRID, 400 KV Kota(PG)-Merta(RS) (PG) Ckt-1 tripped on Zone 1 and 400 KV RAPS_D(NP)-Kota(PG) (PG) Ckt-1 tripped on zone 3 from RAPP D end and DT received at Kota end. POWERGRID representative told that they will look into the tripping in detail and discuss with RAPP end to find the reason of tripping and submit the report after detail analysis.

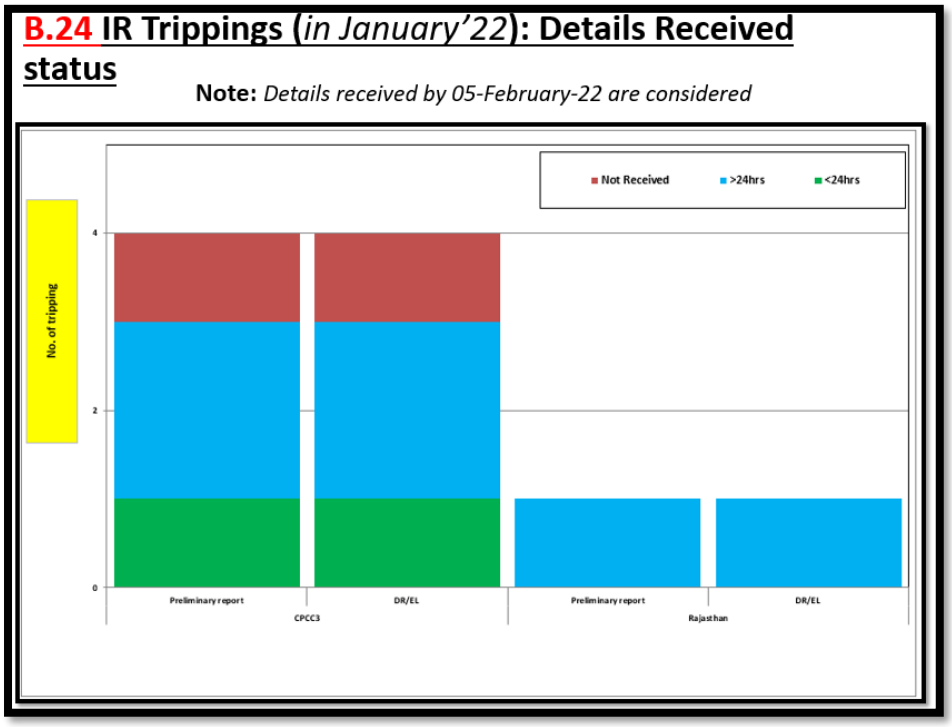
NRLDC representative raised concern about poor status of report updation by POWERGRID, UP, HP and Uttarakhand on the tripping portal. He further stated that timely report submission is an important activity and all constituents are advised to take this on priority and upload the reports.

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

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

29. Details of tripping of Inter-Regional lines from Northern Region for Jan'22

A total of 5 inter-regional lines tripping occurred in the month of Jan'22. The list is attached at Annexure-B.X of the Agenda.



The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees

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

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

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

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

NRLDC representative informed the current status (as on 05th February 2021) of DR/EL and tripping report of utilities for the month of January 2022. Consolidated information is tabulated below:

S. No.	Utility	1st Jan 2022 - 31st Jan 2022											
		Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)
			Value	%	Value		%	Value		%	Value		%
1	AHEJ3L	4	4	100	4	0	100	4	0	100	4	0	100
2	ANTA-NT	2	2	100	2	0	100	2	0	100	2	0	100
3	AP43L	1	1	100	1	0	100	1	0	100	1	0	100
4	ARP1PL	5	2	40	2	0	40	2	0	40	2	0	40
5	AURAIYA-NT	2	0	0	1	1	100	1	0	50	1	0	50
6	BAIRASUIL-NH	8	5	63	5	1	71	5	1	71	5	1	71
7	BBMB	30	9	30	9	12	50	9	15	60	9	10	45
8	BUDHIL	3	3	100	1	0	33	2	0	67	3	0	100
9	CHAMERA-III-NH	3	0	0	0	0	0	0	0	0	0	0	0
10	CHAMERA-II-NH	2	2	100	2	0	100	2	0	100	2	0	100
11	CPCC1	57	4	7	4	8	8	7	6	14	4	3	7
12	CPCC2	31	0	0	1	2	3	2	2	7	8	0	26
13	CPCC3	20	5	25	5	5	33	5	5	33	5	0	25
14	DADRI-NT	10	0	0	0	5	0	0	5	0	0	3	0
15	DHAULIGANGA-NH	2	2	100	2	0	100	2	0	100	2	0	100
16	EDEN (ERCPL)	1	0	0	0	0	0	0	0	0	0	0	0
17	FBTL	1	1	100	1	0	100	1	0	100	1	0	100
18	INDIGRID	9	0	0	0	4	0	0	4	0	9	0	100
19	KARCHAM	8	0	0	0	0	0	0	0	0	8	0	100

S. No.	Utility	1st Jan 2022 - 31st Jan 2022											
		Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)
			Value	%	Value		%	Value		%	Value		%
20	NJPC	6	0	0	0	0	0	0	0	0	6	0	100
21	PKTSL	3	1	33	1	2	100	2	1	100	1	0	33
22	RAILWAYS	1	1	100	1	0	100	1	0	100	1	0	100
23	RAPPA	15	1	7	15	0	100	15	0	100	15	0	100
24	RAPPB	5	1	20	4	0	80	4	0	80	4	0	80
25	RAPPC	1	1	100	0	0	0	1	0	100	1	0	100
26	SHREE CEMENT	2	2	100	2	0	100	2	0	100	2	0	100
27	SINGRAULI-NT	1	1	100	1	0	100	1	0	100	1	0	100
28	SLDC-DV	23	5	22	9	5	50	11	4	58	9	0	39
29	SLDC-HP	14	0	0	1	8	17	1	4	10	0	0	0
30	SLDC-HR	9	1	11	0	1	0	0	1	0	1	0	11
31	SLDC-JK	6	0	0	6	0	100	6	0	100	2	1	40
32	SLDC-PS	30	7	23	10	15	67	11	14	69	26	1	90
33	SLDC-RS	104	0	0	29	0	28	29	0	28	28	0	27
34	SLDC-UK	7	7	100	7	0	100	7	0	100	7	0	100
35	SLDC-UP	125	14	11	18	23	18	17	17	16	17	5	14
36	SORANG	1	1	100	1	0	100	1	0	100	1	0	100
37	TANAKPUR-NH	3	1	33	1	0	33	1	0	33	1	0	33
38	TANDA-NT	3	0	0	0	0	0	0	0	0	0	0	0
39	UNCHAHAR-NT	1	0	0	0	0	0	0	0	0	0	0	0

It is to be noted that as per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement. Also, it is observed that reporting status has been improved from POWERGRID, UP, Haryana and Himachal Pradesh in Jan, 2022 compared to the previous month.

NRLDC representative raised concern about poor status of report updation by Punjab & Uttarakhand on the tripping portal.

Punjab representative informed that report updation status is poor as there is only one team which goes to different substation to extract the relay data. NRLDC representative stated that data extraction may be done by protection team of substation. Punjab representative ensured that they will look into this matter and find the ways to improve the status of report updation on tripping portal.

Uttarakhand SLDC representative informed that they have shared login password and other details to PTCUL STU testing & commissioning wing to upload the reports on tripping portal. However, no action has been taken from their end. NRLDC representative stated that they may again take up the matter with them and ensure timely submission of reports.

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.

31. Frequency response characteristic:

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

Table:

S. No.	**Event Date**	**Time (In hrs.)**	**Event Description**	**Starting Frequency (in Hz)**	**End Frequency (in Hz)**	***Δf***
1	23-Jan-22	14:16hrs	On 23rd January 2022 at 14:16 hrs, as reported, multiple element tripping occurred at 400/220kV Bassi(Raj) on three phase fault. At the same time, tripping of 765kV Bikaner-Khetri ckt-1&2, 765kV Bhadla2-Fatehgarh2 ckt-1 on over voltage protection operation and loss of approx. 1110MW solar generation (960MW at Fatehgarh2(PG) & 250MW at Bhadla(PG)) is observed. Hence, generation loss of 1110 MW has been considered for FRC calculation.	50.05	50.03	-0.02
2	30-Jan-22	11:27hrs	On 30th January 2022 at 11:27 hrs, as reported, event of multiple element tripping occurred at 765/400/220kV Fatehgarh2(PG) due to over voltage. Solar generation loss of around 2038MW (connected at Fatehgarh2(PG)) is observed. Hence, generation loss of 2038 MW has been considered for FRC calculation.	50.02	49.91	-0.11

Status of Data received till date:

Status of Field Data received of FRC of Grid event occurred at Fatehgarh2(PG) on 23.01.2022			
Data Received from		Data Not Received from	
UP	Singrauli NTPC	HP	Rihand NTPC
	Kawai(ADANI)	UK	APCPL Jhajjar
	Dadri TPS	J&K	Others
	Rosa(Reliance)	Punjab	
	Koteshwar HEP	BBMB	
	Unchahar TPS	Rajasthan	
		Delhi	
		Haryana	

Status of Field Data received of FRC of Grid event occurred at Fatehgarh2(PG) on 30.01.2022			
Data Received from		Data Not Received from	
UP	Singrauli NTPC	HP	Rihand NTPC
	Kawai(ADANI)	UK	APCPL Jhajjar
	Dadri TPS	J&K	Others
	Rosa(Reliance)	Punjab	
	Koteshwar HEP	BBMB	
		Rajasthan	
		Delhi	
		Haryana	

PFR as per generators field data

Primary Frequency Response by Generators during Grid Event at Fatehgarh2(PG) on 23th Jan 2022:

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
1.	**Unchahar Unit-1**	60.1%	Unsatisfactory PFR Response
2	**Unchahar Unit-2**	38.94%	Unsatisfactory PFR Response
3	**Unchahar Unit-3**	72.28%	Satisfactory PFR Response
4	**Unchahar Unit-4**	27.92%	Unsatisfactory PFR Response
5	**Unchahar Unit-5**	22.40%	Unsatisfactory PFR Response
6	**Unchahar Unit-6**	145.75%	Satisfactory PFR Response
7	**Dadri TPS Unit-5**	-1.79%	As per NRLDC SCADA data, PFR response (106%) was satisfactory during the event. Field frequency data is not correct and response seems poor as per their data. Dadri TPS may check the data.
8	**Dadri TPS Unit-6**	-2.76%	
9	**Rosa Unit-1**	2.99%	Unsatisfactory PFR Response
10	**Rosa Unit-2**	15.13%	
11	**Rosa Unit-3**	10.04%	
12	**Rosa Unit-4**	10.71%	
13	**Kawai Unit-1**	428.37%	Satisfactory PFR Response
14	**Kawai Unit-2**	-88.16%	Unsatisfactory PFR Response
15	**Singrauli Unit-6**	133.79%	Satisfactory PFR Response
16	**Anapara C Unit-1**	-13.15%	Unsatisfactory PFR Response (As per details shared by Anpara C TPS, early die out of response is observed)
17	**Anapara C Unit-2**	-11.40%	
18	**Harduaganj Unit-8**	543.41%	Satisfactory PFR Response
19	**Harduaganj Unit-9**	500.35%	
20	**Lalitpur Unit-1**	2.27%	Unsatisfactory PFR Response
21	**Lalitpur Unit-2**	84.76%	Satisfactory PFR Response

Primary Frequency Response by Generators during Grid Event at Fatehgarh2(PG) on 30th Jan 2022:

Sr. No	Generating stations	FRC as per generator data (in %)	Response category/Remark
1.	**Kawai Unit-1**	95.17%	Satisfactory PFR Response
2	**Kawai Unit-2**	-3.53%	Unsatisfactory PFR Response
3	**Singrauli Unit-6**	60.16%	Unsatisfactory PFR Response
4	**Singrauli Unit-7**	43.76%	Unsatisfactory PFR Response
5	**Rosa Unit-1**	-8.14%	Unsatisfactory PFR Response
6	**Rosa Unit-2**	-4.09%	
7	**Rosa Unit-3**	0%	
8	**Rosa Unit-4**	2.37%	
9	**Dadri TPS Unit-5**	56.94%	Unsatisfactory PFR Response
10	**Lalitpur Unit-1**	40.50%	Unsatisfactory PFR Response
11	**Lalitpur Unit-2**	3.62%	

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 Singrauli, Kawai, Dadri & UP control area.

NRLDC representative informed that during the event good response has been observed from units of Kawai Unit#1. It was further added that units of Rosa and Singrauli plant are showing poor/unsatisfactory response.

UP representative informed that they will further analyse the response of Rosa units and expedite the PFR testing of the Rosa units.

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

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

In last 11 OCC meetings, this point was discussed and Utilities were requested to submit the present status of PSS tuning/re-tuning and Step Response Test of their respective generators as per the below mentioned format.

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

It may be noted that Tehri HEP conducted PSS tuning/ Step response test of their units and submitted report. Schedule has been received from Rajasthan and UP Control area. However, no further updates have been received from other utilities till date.

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

In 191st OCC meeting, Members were requested to update about their future plan for PSS tuning as there is no progress despite including this agenda in every OCC meeting and a separate meeting may be call for detail discussion on this matter.

NRLDC representative informed that all the units who have done Step response test before 2018 were requested to plan the exciter step-response test as soon as possible and submit the tentative schedule of step-response test on the units with NRPC/ NRLDC. He further informed that till date Schedule has been received from Rajasthan and UP Control area. He further requested that members may kindly Accord due priority in this regard and update about their future plan for PSS tuning as there is no progress despite including this agenda in every OCC meeting and a separate meeting may be call for detail discussion on this matter.

Members agreed for the same.

33. 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 lean hydro period and therefore appropriate 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 proposed schedule for the Mock Black start exercise is as follows:

Hydro Power Stations:

Date	Revised Schedule date	Name of stations	Comment and Remarks
26-Nov-21		* Uri-I, II HEP, Lower Jhelum HEP, Pampore GT's, Upper Sindh and Kishanganga.	Yet to be carried out. No information has been received from J&K about URI-I, Uri-II. As informed by Kishanganga HPS, Black start mode is yet to be integrated in SCADA system at Kishanganga power station by BHEL (OEM). BHEL is being pursued for its expedition. Hence the Mock exercise at Kishanganga shall be possible only after completion of above by OEM.
01-Dec-21	28-Dec-21	* Dhauliganga	Exercise carried out successfully.
04-Dec-21	23-Dec-21	Bairasiul	To be carried out. As requested by HP SLDC.
08-Dec-21		*Sewa-2	As informed by Sewa-2, Mock Black start exercise is not possible as Power Station is under complete shutdown due to HRT repair works.
10-Dec-21	During March 2022	* N.Jhakri and Rampur	Yet to be carried out. As requested by Jhakri HEP & HP SLDC.
15-Dec-21	29-Dec-21	Karcham and Baspa	Exercise unsuccessful due to tripping of Wangtoo-kala Amb line during island build up.
17-Dec-21	After 15 Jan 2022.	*Budhil	Yet to be carried out. As discussed with Budhil HEP the exercise is planned to be carried out after 15th January, 2022.
22-Dec-21		Parbati-3 and Sainj	Yet to be carried out.
24-Dec-21		*Salal	Yet to be carried out. No information has been received from J&K for load management.
29-Dec-21	During March 2022	*Chamera-3	As requested by NHPC.
31-Dec-21	19th January, 2022	Koteshwar	As requested by Koteshwar HEP.
05-Jan-22	After 25 Jan 2022.	Chamera-1 and Chamera-2	Considering the proposed complete s/d of CH-1 PS for HRT inspection w.e.f. 01st Dec. 2021, the mock black start exercise may be postponed and same may be scheduled after 25 Jan 2022.
08-Jan-22	Third week of	Malana-2, AD Hydro and Phozal	Yet to be carried out.

Date	Revised Schedule date	Name of stations	Comment and Remarks
	January, 2022		
12-Jan-22		Tehri	Exercise carried out successfully.
15-Jan-22	After 14 Feb 2022	Koldam	Yet to be carried out. As discussed with Punjab SLDC the exercise is planned to be carried out after 14th February, 2022 (due to election in Punjab).

* 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 to be selected for black start, may preferably be different from the one tested during last year exercise. Also, Constituents are requested to adhere to the finalized schedule of mock exercises during the current season.

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

S. NO.	Utility	Hydro Power Station	Installed Capacity (MW)
19 20 21		Vishnuprayag	4x100
		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 in respect of intra-state generators 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 may please be apprised to NRLDC.

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.

UP representative informed that mock black start exercise has been carried out successfully at Rihand and Obra station. Report of the exercise will be shared with NRLDC/NRPC office.

NTPC representative informed that Black start exercise of Anta & Dadri gas station has been carried out successfully and Black start exercise of Auraiya Gas station will be carried out soon.

NRLDC representative suggested to all the constituents to adhere with the planned schedule. State control area were again requested to conduct the mock black start exercise in their respective area. All utilities were requested to share the schedule of mock exercise within 15 days to NRPC/NRLDC.

34. Revision of document for System Restoration Procedure for Northern Region:

Reactive Power Management document for Northern region has been revised on 31st Jan 2022 & updated document link is as below:

https://nrldc.in/download/system-restoration-nr-2022/?wpdmdl=9968

NRLDC letter in this regard is attached as Annexure-XII of agenda.

Document is password protected and password was already informed to all the NR constituents through letter dated 31st Jan 2022.

All the NR constituent may please go through the document and provide the feedback, suggestion if any.

All the members agreed to share the details/ feedback.

NRLDC representative once again requested to all the utilities to prepare the internal document for utilities own use.

35. Voltage fluctuation during switching operation at Fatehgarh2(PG) (Additional Agenda-1)

NRLDC representative presented following observations from voltage waveform recorded by PMU during switching off a 240 MVAR bus reactor on 1st, 3rd, 29th & 30th January 2022 at Fatehgarh2(PG):

- During opening of 240MVAR Bus reactor at 765kV Fatehgarh2(PG) on 1st & 3rd Jan 2022, smooth switching operation is not observed.
- During opening of 240MVAR Bus reactor at 765kV Fatehgarh2(PG) on 29th Jan 2022, significant spike in voltage of around **22kV** is observed.
- Again, on 30th Jan 2022 at 11:27 Hrs, during opening of 240MVAR Bus reactor at 765kV Fatehgarh2(PG), significant spike in voltage of around 33kV is observed. High shoot up of voltage with consequent tripping of 220/33kV transformers and 220kV feeders connecting the RE stations at Fatehagrh2(PG), resulted in total solar generation loss of approx. **2038MW**.

In view of above, POWERGRID (NR-1) was requested to analyze the events and identify the root cause behind such huge voltage fluctuations and significant spike in voltage during switching operations. POWERGRID was asked to confirm whether CSD (Controlled switching device) for the CB of the reactor is working reliably or not. As the occurrence of voltage spikes is somewhat unpredictable, any other root cause behind such unwanted transients during switching operations may be identified and remedial action taken to ensure smooth switching operation at Fatehgarh2(PG).

In 192 OCC meeting, NRLDC representative stated that such high rise in voltage during switching operations need to be examined in detail by all and corrective actions need to be expedited including commissioning of already planned transmission elements. Moreover, CTU should also try and issue guidelines/ suggestions regarding the quantum of generation that may be safely evacuated with the present network. As there is always a gap between transmission system planned and upcoming solar plants, therefore this assessment also becomes very important. CTU representative agreed that this is likely to be the main reason and they would also try and look for solutions and requested NRLDC to share the communication. NRLDC representative agreed for the same. CTU and NRLDC representatives also highlighted the issue of low SCR at Fatehgarh-II stations and need for expediting commissioning of STATCOM at Fatehgarh-II.

POWERGRID representative informed that CSD is installed in all substations and possibly due to weak network such high voltages are observed. However, they will once again ask CSD OEM to visit and recheck its functioning at the earliest.

Moreover, 765kV Bhadla1-Fatehgarh2 line is also expected to be charged shortly which would improve the connectivity in the complex and is likely to reduce the severity of voltage rise during switching operations.

36. Solar generation loss at RE stations connected at 765/400/220kV Fatehgarh2(PG) (Additional Agenda-2)

NRLDC representative stated that for several events in past 10-15 days, there have been tripping of Renew & Adani hybrid plants connected at 765/400/220kV Fatehgarh-II on number of occasions. During such events, the generation has picked up only after 2-3 minutes even though sustained high voltages were not observed. This large outage of solar generation suggests possible HVRT non-compliance of these stations. Such behavior is not at all desirable nor acceptable. Moreover, there seems to be difference between the simulated response as submitted during registration of plants and that observed in real-time. Outage of 1500-2000MW also resulted in frequency decline by 0.2-0.3Hz.

Moreover, the plants should ensure that the internal settings of plant i.e. for network till POI is such that the plant is able to ensure LVRT/HVRT compliance. Having sensitive or conservative settings internal to the plant could make the plant LVRT/HVRT non-compliant at POI.

MS NRPC also expressed concern on the frequent tripping observed in Fatehgarh-II complex and suggested that separate meetings should be organized with solar developers for which issues have been observed. CTU representative also stated it is big issue if model response is not matching with real-time response. Moreover, SECI and other agencies which are involved during bidding are expected to ensure all regulatory grid compliances.

Adani representative informed that all plants are operating in voltage control mode. All the settings have been checked and after consultation with OEM, slight modifications have been done as suggested by OEM. Reply to NRLDC letter is being drafter and would be shared shortly with NRLDC. It was also mentioned that due to the plant structure and string inverters installation, even if the voltage at plant/POI is 1.0 p.u., the voltage at the inverter is upto 1.07 p.u.. Such high voltages are aggravated during any switching event and even lead to tripping on overvoltage protections. NRLDC representative informed that plant needs to ensure all the compliances at POI as per CEA regulations. If required, the plant may need to install additional reactive power compensation to minimize this high voltage at terminal end.

Renew representative informed that they have modified settings slightly in two plants, after which the active power of plants is not falling down to lower levels as observed in the previous case, however the plants remain connected to the grid in previous as well as this case. Q_{limit} has been increased from 130% to 140% now, after which dip in plant outputs have reduced. They are also rechecking the performance of their PPCs especially in case of HVRT operations. NRLDC representative asked Renew representative to share the changes done at their end physically. Renew representative agreed for the same.

NRLDC and NRPC representatives asked both Adani and Renew to submit detailed reports along with corrective actions taken so that separate meeting may be organized to discuss the issues in detail.

Follow up issues from previous OCC meetings

1	Down Stream network by State utilities from ISTS Station	Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.	List of downstream networks is enclosed in **Annexure-A.I.I.**
2	Progress of installing new capacitors and repair of defective capacitors	Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.	Data upto following months, received from various states / UTs: ◎ CHANDIGARH — Sep-2019 ◎ DELHI — Dec-2021 ◎ HARYANA — Aug-2021 ◎ HP — Jan-2022 ◎ J&K and LADAKH — Not Available ◎ PUNJAB — Aug-2021 ◎ RAJASTHAN — Jan-2022 ◎ UP — Nov-2021 ◎ UTTARAKHAND — Jan-2022 All States/UTs are requested to update status on monthly basis.
3	Healthiness of defence mechanism: Self-certification	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”.	Data upto following months, received from various states / UTs: ◎ CHANDIGARH — Not Available ◎ DELHI — Dec-2021 ◎ HARYANA — Dec-2021 ◎ HP — Jan-2022 ◎ J&K and LADAKH — Not Available ◎ PUNJAB — Mar-2021 ◎ RAJASTHAN — Dec-2021 ◎ UP — Dec-2021 ◎ UTTARAKHAND — Dec-2021 ◎ BBMB — Dec-2021 All States/UTs are requested to update status on monthly basis.
4	Status of FGD installation vis-à-vis installation plan at identified TPS	List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed. Further, progress of FGD installation work on monthly basis is monitored in OCC meetings.	Status of the information submission (month) from states / utilities is as under: ◎ HARYANA — Feb-2021 ◎ PUNJAB — Nov-2021 ◎ RAJASTHAN — Dec-2021 ◎ UP — Nov-2021 ◎ NTPC — Sep-2021 FGD status details are enclosed as **Annexure-A.I.II.** All States/utilities are requested to update status of FGD installation progress on monthly basis.
5	Information about variable charges of all generating units in the Region	The variable charges detail for different generating units are available on the MERIT Order Portal.	All states/UTs are requested to submit daily data on MERIT Order Portal timely.

6	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVAr TCR	Anticipated commissioning: July 2022 (90% supplies received from GE and rest is expected by Feb'22)
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection (delay due to pending supply of reactor bushings). GIS Bay is already available.
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under stage inspection (delay due to pending supply of rector bushings). GIS Bay is already available.
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vii	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
viii	PUNJAB	Dhuri	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	400kV Reactors - LOA issued on dated. 17.08.2021 and date of completion of project is 18 months from the date of LOA. 220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA.
ix	PUNJAB	Nakodar	1x25 MVAr at 220 kV	220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA.
x	PTCUL	Kashipur	1x125 MVAR at 400 kV	Tender has been invited in first week of Jan'22.
xi	RAJASTHAN	Akal	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment forwarded to NLDC, POSOCO on dt. 29.04.2021. Targeted to be completed by March 2022.
xii	RAJASTHAN	Bikaner	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment forwarded to NLDC, POSOCO on dt. 29.04.2021. Targeted to be completed by March' 2022.

xiii	RAJASTHAN	Suratgarh	1x25 MVAr	LOA placed on dt. 4.1.2021. Agreement signed on dt. 8.02.2021. Case for 2nd installment forwarded to NLDC, POSOCO on dt. 29.04.2021. Targeted to be completed by March 2022.
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 dt.22.10.2021 & Price bid opened on 10.01.22. Order likely to be placed in Feb' 2022.
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 dt.22.10.2021 & Price bid opened on 10.01.22. Order likely to be placed in Feb' 2022.

Annexure-A-I.I

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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	-	PDD, J&K to update the status.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	-	PDD, J&K to update the status.
				• 220 kV New Wanpoh - Mattan D/c Line	-	PDD, J&K to update the status.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 6 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	-	PDD, J&K to update the status.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	-	HVPNL to update the status.
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1 Total: 7	Utilized: 3 Unutilized: 3 (2 bays to be utilized shortly) Approved/Under Implementation:1	• 220 kV D/C Shahajahanpur (PG) - Gola line	-	UPPTCL to update the status.
				• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG) – under commissioning	21.02.2022	Updated in 192nd OCC by UPPTCL
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4 (2 bays to be utilized shortly)	• 220 kV Hamirpur-Dehan D/c line	Mar'22	Updated in 192nd OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Mar'22	Forest Cleareance issue has been resolved as Updated in 192nd OCC by RRVPNL
				• Network to be planned for 2 bays.	-	RRVPNL to update the status.
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	-	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	-	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	-	Issue related to ROW as intimated in 192nd OCC.HVPNL to update the status.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0 Approved:4	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	-	HVPNL to update the status.
11	400/220kV Tughlakabad GIS	Commissioned: 6 Under Implementation: 4 Total: 10	Utilized: 6 Unutilized: 0 Under Implementation:4	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	-	DTL to update the status.
				• Masjid Mor – Tughlakabad 220kV D/c line.	-	DTL to update the status.
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Jan'23	Updated in 192nd OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both circuits of 220 KV Pali - Sector 56 D/C line at Kadarpur along with augmentation of existing conductor from 220 KV Sector-56 to LILO point with 0.4 sq inch AL-59 conductor.	-	HVPNL to update the status.
				• LILO of both circuits of 220KV Sector 65 - Pali D/C line at Kadarpur along with augmentation of balance 0.4 sq. inch ACSR conductor of 220 kV Kadarpur - Sector 65 D/C line with 0.4sq inch AL-59 conductor	-	HVPNL to update the status.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both circuits of 220kV D/c Sector-69 - Roj Ka Meo line at 400kV Sohna Road	-	HVPNL to update the status.
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	HVPNL to update the status.
15	400/220kV Prithla Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	-	HVPNL to update the status.
				• 220kV D/C for Sector78, Faridabad	-	HVPNL to update the status.
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 2 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat		HVPNL to update the status.
				• Sonepat - HSIISC Rai 220kV D/c line	Jul'22	Updated in 192nd OCC
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG)	Oct'22	In Tendering stage as updated in 192nd OCC by RVPNL.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	RVPNL to update the status.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	-	PSTCL to update the status.
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	-	PTCUL to update the status.
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	UPPTCL to update the status.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	-	UPPTCL to update the status.
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 4 bays	-	UPPTCL to update the status.
24	400/220kV Abdullapur Sub-station	Commissioned: 10 Under Implementation:2 Total: 12	Utilized: 10 Unutilized: 0 Under Implementation:2	• Abdullapur – Rajokheri 220kV D/c line	Mar'22	Updated in 192nd OCC by HVPNL
25	400/220kV Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 Out of these 10 nos. 220kV Line Bays, 2 bays would be used by the lines being constructed by POWERGRID (Chandigarh-2) and balance 8 nos. bays would be used by HVPNL	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Pinjore 220kV D/c line	-	HVPNL to update the status.
				• Panchkula – Sector-32 220kV D/c line	-	HVPNL to update the status.
				• Panchkula – Raiwali 220kV D/c line	-	HVPNL to update the status.
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	-	HVPNL to update the status.
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Unutilized: 1 Approved in 50th NRPC- 1 no.	• Amritsar – Patti 220kV S/c line	-	PSTCL to update the status.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	-	PSTCL to update the status.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	·• Bagpat - Modipuram 220kV D/c line	-	UPPTCL to update the status.
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• Network to be planned for 2 bays.		HVPNL to update the status.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:6 Unutilized: 2	• Network to be planned for 2 bays.	-	RVPNL to update the status.
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 2 Unutilized: 6	• Sohawal - Barabanki 220kV D/c line	-	UPPTCL to update the status.
				• Sohawal - New Tanda 220kV D/c line	-	UPPTCL to update the status.
				• Network to be planned for 2 bays	-	UPPTCL to update the status.
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	-	RVPNL to update the status
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	HVPNL to update the status
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	UPPTCL to update the status
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	-	PSTCL to update the status
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	-	HPPTCL to update the status
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	UPPTCL to update the status
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	-	PSTCL to update the status

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

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

FGD Status

Updated status of FGD related data submission

NTPC (25.02.2022)
MEJA Stage-I
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (15.02.2022)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (20.12.2021)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (09.02.2022)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Lalitpur Power Gen. Co. Ltd. (15.02.2022)
Lalitpur TPS

Lanco Anpara Power Ltd. (15.02.2022)
ANPARA-C TPS

HGPCL (17.12.2021)
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS

Adani Power Ltd. (18.02.2022)
KAWAI TPS

Rosa Power Supply Company (15.02.2022)
Rosa TPP Phase-I

Prayagraj Power Generation Company Ltd. (15.02.2022)
Prayagraj TPP

APCPL (25.02.2022)
INDIRA GANDHI STPP

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB

NTPC
DADRI (NCTPP)

Talwandi Sabo Power Ltd.
TALWANDI SABO TPP

L&T Power Development Ltd.
Nabha TPP (Rajpura TPP)

Target Dates for FGD Commissioning (Utility-wise)

Adani Power Ltd.	KAWAI TPS U#1 (Target: 31-12-2024), KAWAI TPS U#2 (Target: 31-12-2024)
APCPL	INDIRA GANDHI STPP U#1 (Target: 30-09-2022), INDIRA GANDHI STPP U#2 (Target: 30-09-2022), INDIRA GANDHI STPP U#3 (Target: 30-09-2022)
GVK Power Ltd.	GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020)
HGPCL	PANIPAT TPS U#6 (Target: 30-04-2021), PANIPAT TPS U#7 (Target: 28-02-2021), PANIPAT TPS U#8 (Target: 31-12-2020), RAJIV GANDHI TPS U#1 (Target: 30-04-2022), RAJIV GANDHI TPS U#2 (Target: 28-02-2022), YAMUNA NAGAR TPS U#1 (Target: 31-12-2021), YAMUNA NAGAR TPS U#2 (Target: 31-10-2021)
NTPC	DADRI (NCTPP) U#1 (Target: 31-12-2020), DADRI (NCTPP) U#2 (Target: 31-10-2020), DADRI (NCTPP) U#3 (Target: 31-08-2020), DADRI (NCTPP) U#4 (Target: 30-06-2020), DADRI (NCTPP) U#5 (Target: 30-06-2022), DADRI (NCTPP) U#6 (Target: 30-06-2022), RIHAND STPS U#1 (Target: 30-06-2024), RIHAND STPS U#2 (Target: 30-06-2024), RIHAND STPS U#3 (Target: 31-12-2023), RIHAND STPS U#4 (Target: 31-12-2023), RIHAND STPS U#5 (Target: 30-06-2023), RIHAND STPS U#6 (Target: 30-06-2023), SINGRAULI STPS U#1 (Target: 30-06-2024), SINGRAULI STPS U#2 (Target: 30-06-2024), SINGRAULI STPS U#3 (Target: 30-06-2024), SINGRAULI STPS U#4 (Target: 30-06-2024), SINGRAULI STPS U#5 (Target: 30-06-2024), SINGRAULI STPS U#6 (Target: 31-03-2023), SINGRAULI STPS U#7 (Target: 31-03-2023), UNCHAHAR TPS U#1 (Target: 31-12-2023), UNCHAHAR TPS U#2 (Target: 31-12-2023), UNCHAHAR TPS U#3 (Target: 30-06-2024), UNCHAHAR TPS U#4 (Target: 30-06-2024), UNCHAHAR TPS U#5 (Target: 30-06-2024), UNCHAHAR TPS U#6 (Target: 30-06-2022), MEJA Stage-I U#1 (Target: 31-12-2022), MEJA Stage-I U#2 (Target: 31-12-2022), TANDA Stage-I U#3 (Target:), TANDA Stage-I U#4 (Target:), TANDA Stage-II U#3 (Target: 31-12-2022), TANDA Stage-II U#4 (Target: 31-12-2022)

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

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

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Ref: - ATIL/HVDC/M-K/21-22/30 **Date: 17.02.2022**

Shri Ghanshyam Prasad
Joint Secretary (Transmission),
Ministry of Power,
Shram Shakti Bhawan,
New Delhi-110001

Subject: 4 laning of Ambala-Kaithal section of NH-65 from km 50.860 (Pehowa) to km 95.360(Kaithal) in the state of Haryana under NHDP Phase-III on EPC basis PKG-2. Reg.-Shifting of 33KV Earth Electrode Mahindragarh to Kaithal Transmission Line (T No 463-464) in construction of four laning of NH65 Ambala Kaithal Section.

Ref:

1. NHAI DO No. NHAI/EPC/A-K/PKG-2/11012/2014/HR dated 11.02.2022
2. Our letter ATIL/HVDC/M-K/21-22/20 dated 18.08.2021
3. Our letter ATIL/HVDC/M-K/21-22/20 dated 21.07.2021
4. Our letter ATIL/HVDC/M-K/21-22/07 dated 14.06.2021.
5. Our letter ATIL/HVDC/M-K/21-22/04 dated 23.04.2021
6. Our letter ATIL/HVDC/M-K/20-21/680 dated 20.02.2021.
7. NHAI letter 22054/NHAI/AMB/4364 dated 16.02.2021.
8. Our Letter ATIL ATIL/HVDC/M-K/20-21/66 dated 08.02.2021.
9. Our letter no. ATIL/HVDC/M-K/41 dated 31.07.2020
10. Our letter no. ATIL/EL/HVDC/20-21/47 dated 13.07.2020
11. Our letter no. ATIL/EL/HVDC/40 dated 01.02.2020
12. Our letter no. ATIL/HVDC/M-K/23 dated 26.11.2019
13. Our letter no. ATIL/EL/HVDC/31 dated 20.11.2019
14. Our letter no. ATIL/EL/HVDC/27 dated 14.11.2019
15. Our letter no. ATIL/EL/HVDC/02 dated 14.12.2018
16. NHAI letter no. 22054/NHAI/AMB/2285 dated 01.09.2018

Dear Sir,

With reference to the NHAI letter referred above at 1 in regard to 33 kV earth electrode Mohindergarh-Kaithal line, we would like to apprise you that the pendency of work is due to the reasons attributable to NHAI, Ambala. The brief of project status and its pending issues are as under:

1. Vide letter referred above at 16, NHAI Ambala requested for the shifting of 33kV earth electrode Mohindergarh to Kaithal Transmission Line towers to accommodate

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the four laning of Ambala-Kaithal Section of NH-65 in the state of Haryana and requested to submit the estimate for the said works. Accordingly, vide letter dated 14.12.2018 (ref 15), Adani Transmission (India) Ltd (ATIL) had submitted an estimate of about Rs 2.36 Crore for the said works against which NHAI, Ambala has deposited amount Rs. 2.13 Crore till date. ATIL has been intimating NHAI Ambala regarding the pendency of the balance amount of Rs 22.62 Lakhs (Rs 19.17 Lakhs+ GST @18%) repeatedly (ref 8 to 13). However, we have not received any response from NHAI, Ambala in this regard.

2. We wish to clarify that we have not made any additional demand @5% towards supervision charges . Our estimate of Rs 2.36 crore included Supervision charges @15% in line with the CEA circular File No. CEA-PS-11-24(16)/1/2018-PSPA-I Division. However, NHAI Ambala has considered supervision charges @4% while making the payment of Rs 2.13 Crore, thereby, withholding the balance amount (11%) of Rs 22.62 Lakhs (including GST) towards supervision charges. Further, the shut down charges of Rs 6.39 Crore referred in the DO letter is a claim towards tentative transmission loss amount in lieu of the transmission availability loss due to outage work. The claim towards loss of availability of transmission system is legitimate which may be waived off, if, NRPC grants deemed availability of the transmission system for the period of shut down.

3. Further, it may be noted that issues relating to ROW on the earlier approved route could not be resolved by NHAI (ROW resolution is in the scope of NHAI). Consequently, NHAI directed ATIL to assess feasibility of realignment of the route by permitting for installation of tower in NHAI land vide letter no. 22054/NHAI/AMB/2776 dated 27.10.2020. Vide letter no 22054/NHAI/AMB/3460 dated 14.12.2020, NHAI sought detailed estimate of the additional quantity which will be required for the new route. Accordingly, ATIL carried out the survey and the estimate of about Rs 15.47 Lakhs towards additional procurement and services required for the revised approved route was submitted to NHAI vide letter no. ATIL/HVDC/M-K/20-21/66 dated 08.02.2021. ATIL is still awaiting the payment of such additional material and services from NHAI Ambala despite several reminders.

4. Please note that outage shall be planned only after completion of non-outage work. The clarity regarding payment of Transmission charges or grant of deemed availability is to be arranged by NHAI before taking outage of the line from NRPC/NRLDC. The same is also awaited from NHAI, Ambala. Similar matter related to deemed availability was resolved by NHAI, Bhiwani with NRPC and accordingly the work was taken up.

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5. Further, tower no 454 and 464 fall near to the Highway. In this regard, ATIL has sought protection measure from vehicular movement thrust from NHAI. However, the same has not been provided by NHAI despite repeated reminders since 20-11-2019.

Moreover, while the transmission line diversion work is still incomplete, NHAI has allowed vehicular movement on the Highway. ATIL has brought to the notice of NHAI Ambala that the shifting of tower line is very much essential as movement on highway is not safe for the highway commuters as well as for our transmission line asset. In this regard, it may be noted that the vehicular movement needs to be allowed only if the code of practice for design, installation, and maintenance of overhead power lines for transmission line crossing national highways as mentioned in IS 5613 (Part 3/Sec 2): 1989 is followed. Due to non-completion of diversion work, the following conditions prescribed in IS 5613 (Part 3/Sec 2): 1989 are not satisfied on the ground:

1. The ground clearance of the conductor from the road surface shall not be less than 8.84 meters.
2. At all National highways tension towers shall be used.
3. The crossing span shall not exceed 250 meters in any case.

It is submitted that ATIL is keen to complete the work on top priority. ATIL has completed all the civil foundation work in the project and site is ready for the erection & stringing work. However, due to non-resolution of above issues by NHAI Ambala, we are unable to proceed further. ATIL shall not be responsible for any non-compliance and/or any mishap on ground due to non-completion of work as all pending actions are attributable to NHAI.

In view of the above, it is requested that NHAI may be directed to resolve the issues pending at their end for early completion of the work. Pendency of the above work may lead to additional cost implication in future.

Thanking You

For Adani Transmission (I) Ltd,

Authorized Signatory
Sameer Ganju
sameer.ganju@adani.com

LONG OUTAGES REPORT AS ON 07-03-2022

Annexure-B.I

S. No`	Element Name	Type	Owner	Outage Date and Time		Reason / Remarks
A	**LINE**					
1	220 KV Kishenpur(PG)-Ramban(PDD) (PDD) Ckt-1	Line	PDD JK	31-03-2020 (again out since 19.02.2022)	16:43	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 Sohawal(PG)-Gonda(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:00	Emergency shutdown of line taken, as tower no. 34 is affected by flood.
3	220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt-1	Line	UPPTCL	12-08-2021	09:12	Emergency shutdown of line taken, as tower no. 34 is affected by flood.
4	220 KV AGRA(PG)-FEROZABAD(UP) (UP) CKT-1	Line	UPPTCL	27-11-2021	09:55	Jumpering work for making Lilo point of 220 kv Firozabad(400)-Agra(765) PG line at 220 kv Tundla. FTC process completed but yet to be charged due to PLCC issue at Tundla end.
5	220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-2	Line	DTL	10-01-2022	15:39	Y-phase CB of 220kV Mandola-Gopalpur-2 blasted at Mandola at 20:42 hrs on dated 28.12.2021. The porcelain of Line side Y-phase Isolator of Gopalpur-2 line got damaged. S/D taken to attend the alignment and the IPS tube connection of 20389L isolator Y-phase to BPI.
6	400 KV AMARGARH(NRSS XXIX)-SAMBA(PG) (NRSS XXIX) CKT-2	Line	NRSS XXIX	20-01-2022	13:18	Urgent SD to bypass tower #286 along with dismantling of tower #286 to safeguard the transmission line from landslide conditions subsequent to uninformed excessive hill cutting done by BRO (OCC 191)
7	400 KV AMARGARH(NRSS XXIX)-SAMBA(PG) (NRSS XXIX) CKT-1	Line	NRSS XXIX	20-01-2022	13:19	
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	CEA clearance awaited
2	40452B MAIN BAY - 400KV SURATGARH(RVUN)-RATANGARH(RS) (RS) CKT-1 AT Ratangarh(RS)	BAY	RRVPNL	25-12-2020	17:05	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	400 KV Kadarpur (GPTL) - Bus 1	BUS	GPTL	17-04-2021	13:18	E/S/D taken due to abnormal humming sound observed from 400KV B-phase BUS-1 CVT at Kadarpur.
4	425 MAIN BAY - 400/220KV 500 MVA ICT 3 AT DADRI(NT)	BAY	NTPC	20-11-2021	16:20	Due to 400KV Main breaker 2552 of ICT 3 opening/ closing problem from remote the bay was kept out while ICT 3 was charged thru tie bay breaker 2652.

S.No	Element Name	Type	Owner	Outage		Reason / Remarks
C	ICT					
1	400/220 kV 315 MVA ICT 1 at Bhilwara(rs)	ICT	RRVPNL	12-05-2019	23:42	Oil leakage in transformer.
2	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	ICT	UPPTCL	13-03-2020	02:46	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.
3	400/220 kV 315 MVA ICT 2 at Bawana(DV)	ICT	DTL	30-03-2021	17:35	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	500 MVA ICT-I also got damaged due to fire in ICT-II, for protection testing.
5	400/220 kV 315 MVA ICT 2 at Mundka(DV)	ICT	DTL	20-09-2019	00:419	Due to fire in ICT.
6	765/400 kV 1500 MVA ICT 2 at Gr.Noida_2(UPC)	ICT	UPPTCL	12-11-2021	14:22	PRV- 1 & 2 Trip, Differential protection and Buchholz Trip. inspected our 1500 MVA ICT-2 (R-Ph), During inspection it is found that the IV Bushing got damaged and oil flowed out from the bushing. During complete internal inspection by OEM M/s BHEL winding found faulty
7	400/220 kV 315 MVA ICT 4 at Mundka(DV)	ICT	DTL	13-11-2021	19:15	Buchholz trip.
8	400/220 kV 240 MVA ICT 3 at Moradabad(UP)	ICT	UPPTCL	13-12-2021	22:38	Due to high DGA values, Hydrogen gas is above permissible limit.
9	220/33 kV 125 MVA ICT 4 at Saurya Urja Solar(SU)	ICT	SAURYA URJA	20-12-2021	20:15	ICT-4 tripped due to operation of of PRD, REF, Differential and Buchholz relay.
10	400/220 kV 315 MVA ICT 1 at Bikaner(RS)	ICT	RRVPNL	03-01-2022	08:23	O/C trip, Y-Ph optd, STG-2. 86 A, 86 B
11	400/220 KV 240 MVA ICT 3 AT MURADNAGAR_2(UP)	ICT	UPPTCL	05-01-2022	12:08	Replacement of Gaskit of 240 MVA ICT-III

D	LINE REACTOR					
1	50 MVAR Non-Switchable LR on Agra-Unnao (UP) Ckt-1 @Agra(UP)	LR	UPPTCL	28-10-2021	22:27	R and Y phase bushing damaged at Agra(UP).
2	50 MVAR Non-Switchable LR on Allahabad-Fatehpur (PG) Ckt-2 @Allahabad(PG)	LR	POWERGRID	27-11-2021	00:32	After multiple emails and telephonic conversations to furnish the reason for the outage no reply has been obtained from CPCC-3.
3	50 MVAR Non-Switchable LR on Allahabad-Fatehpur (PG) Ckt-1 @Allahabad(PG)	LR	POWERGRID	27-11-2021	00:32	After multiple emails and telephonic conversations to furnish the reason for the outage no reply has been obtained from CPCC-3.
E	**BUS REACTOR**					
1	80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SJ)	BR	SJVNL	17-10-2019	12:58	Flashover/Fault in 80MVAR Bus Reactor cleared by Bus Bar Protection. Expected revival in Dec-2021.
2	50 MVAR Bus Reactor No 1 at 400KV Moradabad(UP)	BR	UPPTCL	03-12-2021	22:22	R-phase bushing damaged.

F	GENERATING UNITS				
S.No	Station	Owner	Outage Reason	Outage Date	Outage Time
1	600 MW RGTPP (Khedar) - UNIT 2	HVPNL	Capital Overhauling. Expected date to be confirmed from HVPNL.	02-03-2021	00:00
2	66 MW Pong HPS - UNIT 4	BBMB	Failure of compressed air system of Breaking.	28-07-2021	15:00
3	250 MW Chhabra TPS - UNIT 4	RRVPNL	Due to ESP structure damage	09-09-2021	00:47
4	35 MW Budhil HPS (IPP) - UNIT 1	Greenko Budhil	Flooding of power house due to damage of Main Inlet Valve at Budhil.	26-10-2021	17:00
5	100 MW Koteshwar HPS - UNIT 1	THDC	due to fault in GT	04-11-2021	22:58
6	126 MW Bhakra HPS - UNIT 4	BBMB	Annual Maintenance	01-12-2021	09:30
7	104.6 MW Pragati Gas Turbines - UNIT 2	DTL/Pragati CCGT	Internal fault	26-12-2021	01:10