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सत्यमेव जयते

भारतसरकार
Government of India
विद्युतमंत्रालय
Ministry of Power
उत्तर क्षेत्रीय विद्युत समिति
Northern Regional Power Committee

विषय: उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 208वींबैठक के खण्ड-अ मे लिए गए निर्णयों का सार I

Subject: Gist of decisions taken in the Part-A of the 208th OCC meeting of NRPC.

दिनांक 20.06.2023 को आयोजित उत्तरक्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप- समिति की 208वींबैठक केखण्ड-अ मे लिए गए निर्णयों का सार **अनुलग्नक – अ** के रूप मे संलग्न है I

Gist of the decisions taken in Part-A of the 208th meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC held on 20.06.2023, is enclosed as **Annexure-A**.

(संतोष कुमार)
अधीक्षणअभियंता (प्रचालन)

सेवा में,

प्रचालन समन्वय उप- समिति के सभी सदस्य I

अनुलग्नक – अ
Annexure-A

Gist of decisions taken in the Part-A of the 208th OCC Meeting

Agenda No. 1: Confirmation of Minutes

Minutes of the 207th OCC meeting was issued on 14.06.2023.OCC confirmed the minutes.

Agenda No. 2 : Supply Position (Provisional) for May 2023

Reasons submitted by states for significant deviation of actual demand from anticipated figures during the month of May 2023 are as under:

- **Delhi**

  Cloudy skies and frequent rainfalls in May, 2023 caused the below normal average maximum temperature in Delhi so peak demand and energy consumption was on lower side than expected.

- **Himachal Pradesh**

  The Anticipation in Energy Requirement as well as peak demand in respect of Himachal Pradesh for the month of May, 2023 came on the lower side due to unpredictable weather conditions in the State and rainfall at various periods of the month.

  Punjab

  Punjab intimated that actual maximum demand is more as compared to anticipated maximum demand due to dry spell and rise in temperature in mid of month of May, 2023. Actual energy requirement is less as compared anticipated energy requirement because of rainfall in first and last week of May 2023 and comfortable weather during most of the month of May in the state of Punjab.

- **Rajasthan**

  The Actual Energy requirement w.r.t. Anticipated Energy requirement for May, 2023 decreased by 11.5% and peak demand w.r.t. Anticipated peak demand for May, 2023 is increased by 10.5% due to unexpected variations in the weather (like spell of rains & Heat Wave) during the month of May, 2023 in Rajasthan state.

- **Uttar Pradesh**

  Due to unexpected rains and low atmospheric temperature in May, 2023 in comparison to May 2022, energy requirement and energy Consumption was less than anticipated.

- **Uttarakhand**

  The negative variation in actual Energy consumption w.r.t. anticipated Energy requirement is due to unexpected rainfall, thunderstorm and snowfall in hilly areas in the month of May, 2023, causing drop in temperature compared to last year.

Agenda No. 3 : Maintenance Programme of Generating units and Transmission Lines

- The maintenance programme of generating units and transmission lines for the month of July 2023 was deliberated in the meeting on 19.06.2023.

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

Element Name	Owner	Reason	Requested From	Requested To	Daily/ Continuous	Decision of OCC
500 MW SINGRAULI STPS-UNIT 7	NTPC	Boiler License Renewal	25-Jul-23	29-Jul-23	Continuous	OCC approved the shutdown from 21st July for 4 days as per mandatory requirement. NTPC was asked to ensure work is completed in minimum time.

Agenda No. 4. : Anticipated Power Supply Position in Northern Region for July 2023

- The updated anticipated Power Supply Position for July 2023 is as below:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	190	350	No Revision submitted
	Requirement	210	430	
	Surplus / Shortfall	-20	-80	
	% Surplus / Shortfall	-9.5%	-18.6%	
DELHI	Availability	5320	8100	19-Jun-23
	Requirement	4050	8100	
	Surplus / Shortfall	1270	0	
	% Surplus / Shortfall	31.4%	0.0%	
HARYANA	Availability	5810	12555	19-Jun-23
	Requirement	6799	13457	
	Surplus / Shortfall	-989	-902	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	% Surplus / Shortfall	-14.5%	-6.7%	
HIMACHAL PRADESH	Availability	1151	1759	09-Jun-23
	Requirement	1115	1784	
	Surplus / Shortfall	36	-25	
	% Surplus / Shortfall	3.2%	-1.4%	
J&K and LADAKH	Availability	2320	3520	No Revision submitted
	Requirement	1570	2820	
	Surplus / Shortfall	750	700	
	% Surplus / Shortfall	47.8%	24.8%	
PUNJAB	Availability	8000	13978	19-Jun-23
	Requirement	8617	15000	
	Surplus / Shortfall	-617	-1022	
	% Surplus / Shortfall	-7.2%	-6.8%	
RAJASTHAN	Availability	9340	18330	19-Jun-23
	Requirement	7750	13200	
	Surplus / Shortfall	1590	5130	
	% Surplus / Shortfall	20.5%	38.9%	
UTTAR PRADESH	Availability	15810	26500	13-Jun-23
	Requirement	15655	27700	
	Surplus / Shortfall	155	-1200	
	% Surplus / Shortfall	1.0%	-4.3%	
UTTARAKHAND	Availability	1414	2398	13-Jun-23
	Requirement	1426	2450	
	Surplus / Shortfall	-12	-52	
	% Surplus / Shortfall	-0.8%	-2.1%	
NORTHERN REGION	Availability	49355	78900	
	Requirement	47192	76600	
	Surplus / Shortfall	2163	2300	
	% Surplus / Shortfall	4.6%	3.0%	

Agenda No. 5: Follow-up of issues from various OCC Meetings - Status update

- Updated status is enclosed as ***Annexure-A.I***.
- In the 208th OCC, SLDCs were requested again to coordinate with respective Transmission utilities of states/UT's and submit details about the updated status of downstream network by State utilities from ISTS Station (***Annexure-A-I.I)*** before every OCC meeting.

Agenda No. 6. NR Islanding scheme

- In the meeting, AEE(SS) apprised forum that draft report submitted by CPRI for Agra-Lalitpur Islanding scheme was deliberated in the 206th OCC meeting and UPSLDC was asked to take up the issues discussed in the meeting with CPRI. In the 208th OCC meeting UPSLDC representative intimated forum that they have communicated the matter to STU vide letter dated 21.04.2023 for taking up with CPRI and comments from CPRI are awaited.
- MS, NRPC asked UPSLDC to kindly follow up with CPRI and expedite the matter.
- Representative from UPPTCL apprised forum that with regard to Lucknow-Unchahar islanding scheme, the retendering for procurement of UFR's for the aforesaid islanding scheme has been done.
- Representative from Rajasthan STU intimated forum that preparation of DPR is under finalization and would be shared shortly with NRPC Sectt. and NRLDC for Jodhpur-Barmer Rajwest and Suratgarh islanding scheme.
- AEE(SS) apprised forum that Pathankot-RSD islanding scheme has been implemented in March, however, testing/commissioning reports with regard to islanding scheme is awaited. Punjab SLDC representative informed forum that testing/commissioning reports would be presented by STU in the upcoming protection sub-committee meeting of NRPC which is scheduled on 23.06.2023.
- Further, with regard to Patiala-Nabha Power Rajpura islanding scheme representative from Punjab informed that tendering has not started and expected timeline for the aforesaid islanding scheme is December 2023.
- With regard to Kullu-Manali islanding scheme representative form HPSLDC apprised forum that discom has intimated that approval is expected with one week from their management and upon approval the tentative timeline for implementation is around six months. Further, he intimated that Malana HEP has informed that the PFR testing work order has been given to M/S Solvina pvt. ltd. on dated 02.05.23, but they have not confirmed the Test date yet due to their busy schedule.
- With regard to Shimla-Solan islanding scheme representative from HPSLDC apprised forum thatthey have done correspondence with BHEL regarding switching of Bhaba HEP to automatic mode during the situation of islanding formation but no response has been received from BHEL till date.
- AEE(SS) apprised forum that a meeting has been scheduled on 22.06.2023 (at 3p.m.) with Delhi SLDC and DTL to deliberate on steady state analysis of PSSE basecase of Delhi islanding scheme.

Agenda No. 7. Coal Supply Position of Thermal Plants in Northern Region

- In the meeting, NRPC representative apprised the forum about the coal stock position of generating stations in northern region during current month (till 10thJune 2023).
- Average coal stock position of generating stations in northern region, having critical stock, during first ten days of June 2023 is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd. (Days)	Actual Stock (Days)
TALWANDI SABO TPP	1980	71.90	26	3.4

- In the meeting, above mentioned generating station was requested to take adequate measures.

Agenda No. 8.Review of Planned Outages for September, 2023 (Agenda by NRPC Sect.)

- MS, NRPC informed forum that in the review meeting taken by Hon'ble Union Power Minister on 13.06.2023, it was directed that the planned outages for the month of September has to be reduced from 20.4GW to 11.4GW i.e. (9 GW has to be made available) to meet the anticipated shortages.
- In the meeting, the list of outages of NR generating units falling in last week of August 2023and month of September 2023 were reviewed in compliance of directions from Ministry.
- RRVUNL vide mail dated 20.06.2023(copy attached as **Annexure-II**)submitted the revised annual maintenance schedule of RRVUNL Power Stations for FY 2023-24 which was discussed in 208th OCC meeting. Based on the discussions held in the meeting, annual outage schedule for following units were tentatively revised:

Station	Unit	Capacity (MW)	Revised Outage from	Revised Outage To	Remarks
SSTPS SURATGARH	6	250	07-Jul-23	27-Jul-23	Annual Boiler Overhaul
SSTPS SURATGARH	5	250	01-Aug-23	21-Aug-23	Annual Boiler Overhaul
SSCTPS SURATGARH	8	660	25-Sep-23	15-Oct-23	Annual Boiler Overhaul
SSCTPS SURATGARH)	7	660	16-Nov-23	15-Dec-23	Annual Boiler Overhaul
KOTA TPS (KSTPS)	2	110	23-Jun-23	17-Jul-23	Annual Boiler Overhaul
KOTA TPS (KSTPS)	4	210	27-Jul-23	14-Aug-23	Annual Boiler Overhaul
KOTA TPS (KSTPS)	7	195	01-Oct-23	21-Oct-23	Annual Boiler Overhaul
KOTA TPS (KSTPS)	3	210	01-Jan-24	21-Jan-24	Annual Boiler Overhaul
KOTA TPS (KSTPS)	6	195	01-Feb-24	21-Feb-24	Annual Boiler Overhaul
KALISINDH TPS (KATPP)	1	600	01-Jul-23	21-Jul-23	Annual Boiler Overhaul
KALISINDH TPS (KATPP)	2	600	25-Jul-23	14-Aug-23	Annual Boiler Overhaul
CTPP CHHABRA	4	250	01-Oct-23	09-Nov-23	Capital Overhaul
CSCTPP CHHABRA	6	660	26-Jun-23	20-Jul-23	Annual Boiler Overhaul
CSCTPP CHHABRA	5	660	25-Jul-23	18-Aug-23	Annual Boiler Overhaul
RAMGARH CCPP	GT-1	35.5	01-Jan-24	30-Jan-24	Replacement of Diffuser and Exhaust Planuum

RAMGARH CCPP	GT-3	110	01-Feb-24	16-Mar-23	Major Inspection and Annual Maintenance
RAMGARH CCPP	ST-2	50	01-Feb-24	16-Mar-23	Annual Maintenance

- With regard to SSTPS SURATGARH (Unit 3 – 250 MW) and CTPP CHHABRA (Unit 2 – 250 MW), RRVUNL intimated that these units were originally approved in LGBR 2023-24, but now they do not require the shutdown of these units. Hence, approval of original outage schedule of these units in the month of September 2023 stands cancelled.
- APL representative informed forum that due to problem in high pressure control valve of Turbine in Unit-1, which is to be addressed on priority considering the safety aspects' they plan to prepone the overhaul of Unit 1 of KAWAI TPS from 01st Jul 23 to 25th Jul 23. OCC forum agreed to the request of Adani Power.
- Owing to high anticipated demand in the month of September, OCC forum decided to defer the planned shutdown of Tanda TPS Unit 1 (110 MW) and Auraiya CCPP ST-2 (109.3 MW) to the month of October. Further, OCC forum asked NTPC to prepone the shutdown of Anta CCPP ST (153 MW) by one week.
- Representativeof Haryana intimated that due to high anticipated demand they have deferred the shutdown of Rajiv Gandhi TPS Unit 2 (600 MW) till 15th Nov 2023.

Agenda No. 9. Redundant connectivity between Aulsteng (JKPTCL) and Drass (POWERGRID) (Agenda by UT of Ladakh)

- In regard to cited matter, CTU representative intimated that a meeting was held in CEA under the chairmanship of Member (Power Systems) for deliberation on the issue related to the reliability of power supply for UT of Ladakh on 06.06.2023.(copy of MoM is attached as **Annexure-III**).
- He intimated forum that as an interim solution in the above meeting, POWERGRID informed that they are laying cable between Minamarg and Zojila Top section (15 km) of Alusteng – Drass 220 kV section of SLTS line to provide the strengthening in the most vulnerable section of SLTS. Further, these works would be completed by next season (October, 2024) and it would take care of the concerns of Ladakh PDD about the vulnerability of SLTS line passing through avalanche prone zone, to some extent.
- Further he apprised forum that as a long term solution, 220 kV interconnection from Pang RE Park to Leh/Phyang has already been agreed and after completion of which, Ladakh would have two independent interconnections from the National Grid.
- CTU highlighted that in the CEA meeting dated 06.06.2023, it was also suggested that Ladakh may explore the possibility of implementation of small scale distributed RE projects with BESS, that would cater the local demand in Ladakh region techno-economically.
- MS, NRPC stated that as the matter has been deliberated in the meeting in CEA, and based on the feedback received from CTU the matter may not be regularly discussed in the OCC meetings.

Agenda No. 10. Power evacuation problem of Power Stations of RVUNL(Agenda by RVUN)

- With regard to the Power evacuation problem of STPS, Suratgarh, RRVUNL representative intimated forum that they are two dedicated 400 kV lines (Bikaner - STPS-SC) for evacuating power from both units of STPS-SC. Additionally, there are two interconnectors connecting STPS(6x250MW) and STPS-SC(2x660MW). Currently, during the day time, due to solar generation in Bikaner, these Bikaner lines are exporting power to STPS instead of importing. Consequently, all the power generated by both STPC-SC units and the exported power from Bikaner is transmitted through the two interconnectors and ultimately evacuated through the outgoing feeders of STPS lines. This puts excessive stress on the old existing outgoing feeders of STPS, resulting in jumper/isolator failures in various lines. As a consequence, the units are frequently desynchronized to address these faults, leading to significant losses of DC to RVUN.
- On the above matter, RVPN representative mentioned that till the commissioning of Bikaner-II sub-station, an interim arrangement has been done from 765kV Bikaner (PG) to 400kV Bikaner(RVPN), wherein both circuits are connected to 400kV Bikaner (RVPN). During peak solar period approx. 1500 MW to 2000 MW RE power is coming to 400kV Bikaner (RVPN) from 765kV Bikaner (PG) and there is about 400MW of state RE injection at 400kV Bikaner(RVPN), some of this RE power is evacuated towards STPS Suratgarh. With the commissioning of Bikaner-II sub-station which is anticipated shortly there will be reduction in RE power coming at 400kV Bikaner (RVPN) which would provide some relief. Further, lines from STPS Suratgarh to Babai is expected by Dec'23 and 400 kV GSS at Hanumangarh is also planned, these additional elements would provide support in RE power evacuation in Bikaner complex.
- Powergrid highlighted that the commissioning of STATCOM at Bhadla-II is almost complete and with this voltage profile will also improve at Bikaner RE pooling station as 400kV Bhadla (RVPN) and 400kV Bikaner (RVPN) are interconnected by double-circuit. Further, he also mentioned that STATCOM for Bikaner-II is expected to be commissioned in near future.
- With regard to the Power evacuation problem of KTPS, Kota, RRVUNL representative intimated forum thatthe 220 kV feeders of PGCIL #1 & #2 are designated for importing generation from Unit # 6 & 7 of KTPS. However, at present, these feeders are predominantly exporting power rather than importing from KTPS. Additionally, other outgoing feeders such as Vatika, Heerapura, and Bewar have low load, causing the majority of KTPS generation to be exported through the Sakatpura feeders. The Sakatpura feeders are short-distance feeders, spanning approximately 500 meters, and the bus-bar protection at Sakatpura has been non-functional for an extended period. Consequently, all faults occurring at Sakatpura reflect back to KTPS, leading to adverse effects on its generation capacity.
- On the above matter, RVPN representative mentioned that timeline for anticipated commissioning of 400kV GSS Sangod is around 24 months from sale purchase agreement which is likely to be completed in one or two month. With the commissioning of 400kV GSS Sangod, Bara will be directly connected to it and load from Bara and Dahra centers will be diverted from KTPS to 400KV GSS Sangod. Also, 132 kV network

presently being catered from KTPS will be diverted to400KV GSS Sangod which will also provide some load relief.

- Further, as an immediate solution to meet load at Sakatpura, RVPN is planning LILO of Kota(PG) to Duni line so that there is direct source from Kota(PG) to Sakatpura and some load at KTPS switchyard will be diverted. Presently this proposal is being studied by RVPN. RVPN also mentioned that with regard to non-functional busbar protection at Sakatpura, the A&FS is under approval and work is likely to be completed by Dec'23.
- With regard to the Power evacuation problem of CTPP, Chhabra, RRVUNL representative intimated forum that there are two inter-connectors from CSCTPP, Chhabra to CTPP, Chhabra. Due to these two interconnectors almost 2/3 load of CSCTPP evacuate through CTPP outgoing feeders while two dedicated feeders from CSCTPP evacuates only 1/3of the generated load. Moreover, 400kV CTPP-ADANI Line also injects load to the tune of 300-400 MW to CTPP Switchyard. All this extra load creates stress on Jumpers, Connectors, Isolators, formation of Hot Spots etc. at 400 kV Switchyard of CTPP.
- On the above matter, RVPN representative mentioned that in the 3rd meeting of Northern Regional Standing Committee on Transmission it was decided that interconnection line between CSCTPP and CTPP has been made to cater to the contingency conditions and would remain open in normal condition. Presently due to operational point of view, this interconnector is being kept close to ensure the reliability of CSCTPP Chhabra.
- RVPN mentioned that as decided in the 3rd NRSCTP meeting if interconnector is kept open then there will be some relief at switchyard of CTPP Chhabra. Further, with the commissioning of 400kV GSS Sangod, 220kV Aklera will be connected to Sangod which in turn will be connected to Anta and Kalisindh that will also provide some relief as some load will be diverted from CSCTPP, Chhabra.

Agenda No. 11. Allotment of 500 MVA, 400/220 kV ICT available as regional spare at PGCIL's 400kV GSS Jaipur (South) to RVPN for utilization at RVPN's 400 kV GSS Chittorgarh.(Agenda by RVPN)

- To avoid transmission constraints and to meet increased load demand at RVPN's 400kV GSS Chittorgarh, RVPN requested for approval to use 500 MVA, 400/220 KV ICT available as regional spare at PGCIL's 400 KV GSS Jaipur (South) by RVPN at RVPN's 400 kV GSS Chittorgarh.
- In the meeting, RVPN representative informed forum that as an alternative they have planned one 315 MVA, 400/220 ICT which is expected by mid of July, and if they are able to get it by mid of July then they will be able to commission it before Rabi season.
- He requested forum that in case, if this 315 MVA ICT is not received by mid of July then RVPN may be allotted the 500 MVA, 400/220 kV ICT available as regional spare at PGCIL's 400kV GSS Jaipur (South) for utilization at RVPN's 400 kV GSS Chittorgarh.
- Further, he mentioned that in the meanwhile bay work is under tendering stage and it is likely to be completed by September 2023.

- Powergrid NR-1 intimated forum that they will get it examined whether the regional spare available at PGCIL's 400kV GSS Jaipur (South) has been identified for any utility.
- Meanwhile MS, NRPC asked RVPN to kindly follow up with the concerned entity that 315 MVA ICT is received by mid of July so that regional spare may not be required.

Agenda No. 12. Full schedule of units of NTPC thermal stations, for FGD PG test (Agenda by NTPC)

- In the meeting, NTPC apprised forum that that it is implementing Flue Gas Desulphurization (FGD) systems in its thermal stations to meet SO2 emission norms and full load operation of the units for 5 days is required for PG test of FGD.
- NRLDC mentioned that requisition is to be given by beneficiary.
- OCC forum was of opinion that NTPC shall approach the concerned beneficiaries for their consent ten days before the PG test.
- ***Decision of the OCC forum***

  Forum asked NTPC to approach the concerned beneficiaries for their consent ten days before the PG test.

Agenda No. 13. Revision of SPS scheme for safe evacuation of power from Anpara Complex (Agenda by UPSLDC)

- In the meeting, UPSLDC representative intimated that following the LILO of 765kVAnpara D-Unnao line at Obra C TPS and in view of synchronization of 1x660 MW Unit at Obra-C TPS expected in July 2023, existing system protection scheme for safe evacuation of power from Anpara Complex, needs to be revised.
- UPSLDC representative presented to the forum the proposed revised SPS scheme for Anpara Complex for both single and multiple contingencies. (Details of the scheme are attached as **Annexure A.VII of the agenda**).
- Further, UPSLDC mentioned that they would require complete communication path between the stakeholder sub-stations viz. Unnao, Anpara C, Anpara D and Obra C. Presently, the optical fibre path from Unnao to Anpara D via Obra C is not through.
- NRLDC asked UPSLDC to share the base case for the proposed SPS at Anpara Complex with them and upon examination of same they would communicate its observation to UPSLDC.
- ***Decision of the OCC forum***

  Forum asked UPSLDC to submit the base case for the proposed SPS at Anpara Complex *with NRLDC for its examination.*

Table Agenda No.1: Request for approval of Shutdown of 400kV Kankroli Jodhpur S/C Transmission Line for reconductoring with Twin HTLS Conductor (Agenda by Powergrid NR-1)

- In the meeting, Powergrid NR-1representative informed that reconductoring work of 400kV Kankroli Jodhpur S/C Transmission Line was approved in the 9th meeting of

National Committee on Transmission (NCT). The length of 400kV Kankroli Jodhpur line is 188 km. Schedule of said work is 14 months in which retrofitting of switchyard equipment will also take place at both end of the transmission line.

- Further, he mentioned that Powergrid has planned the de-conductoring and reconductoring work of the said line within 4 months.
- NRLDC representative presented to the forum the past one-year line flow of 400kV Kankroli Jodhpur S/C Transmission Line and stated that before October line loading is comparatively high due to evacuation of wind generation of nearby complex through this line.
- Rajasthan SLDC mentioned that from October onwards wind generation is not there or very minimal, hence said work may be planned after the month of September.
- Considering the above, OCC forum viewed that reconductoring work of 400kV Kankroli Jodhpur S/C Transmission Line may be planned after the month of September when wind generation is minimum.
- ***Decision of the OCC forum***

  Forum asked Powergrid that reconductoring work of 400kV Kankroli Jodhpur S/C Transmission Line may be planned after the month of September.

Table Agenda No.2:Removal of LILO of 400KV DC Bikaner(RRVPN)-Bhadla(RRVPN) Line from Bikaner (PG) and Extension of above LILO section from Bikaner (PG) to Bikaner-II further named as 400KV D/C Quad Bikaner(PG)-Bikaner-II line(Agenda by Powergrid NR-1)

- In the meeting, Powergrid NR-1representative informed forum that pre-commissioning activities of 765/400kV Bikaner-II substation are almost complete. For commissioning of 765/400kV Bikaner-II substation, shutdown of both circuits of 400kV D/C Bikaner (PG)- Bikaner (RVPNL) is required by Powergrid. He also intimated that CEA clearance for charging of Bikaner-II substation is expected within a day and thereafter they will be able to energize 400kV Bikaner-II(PG)-Khetri Q/C line.
- On the cited matter, NRLDC representative presented to the forum simulation study conducted by them for different scenario/cases in respect of shutdown of 400kV Bikaner(PG)-Bikaner(RS) D/C for commissioning of Bikaner_2 SS (detailed study result are attached as **Annexure-A.IV**).
- Major observation of the study presented by NRLDC were as follows:
  - To facilitate the SD of 400kV Bikaner(PG)-Bikaner (RS) D/C without ERS option, a total STOA curtailment of 1423-1723 MW would be required.
  - STOA curtailment of 200-300 MW would be required if quad moose ERS on 400kV Bikaner-Bikaner_2 becomes operational.
  - Simultaneous operation of ERS and 400kV Bikaner(PG)-Bikaner(RS)-1 is not desirable as the loading of later would increase beyond the permissible line loading limit of 1450 MVA.

— With final commissioning of 400kV Bikaner-Bikaner_2 D/C, STOA curtailment of 100-200 MW at Fatehgarh_1 would be required for keeping the RE pocket n-1 compliant.

— With revival of 400kV Rajasthan lines in gradual manner which are out due to recent cyclonic storms, generation restriction of Rajasthan Solar and STOA curtailment would be removed.

— It may be noted that in case of revival of 400kV Bhadla(RS)-Bikaner(RS) D/C, no curtailment of Rajasthan Solar or ISGS RE would be there after commissioning of 400kV Bikaner-Bikaner_2 DC.

- In the meeting, NRLDC representative highlighted that in case of tripping of 765kV Bikaner-Khetri-1/2, loading on 400kV Bikaner-Bikaner_2 (ERS) would go beyond its thermal rating. SPS needs to be implemented in case loading of 400kV Bikaner-Bikaner_2 (ERS) crosses 1750 MVA.
- RVPN representative informed that they would revive one circuit of 400kV Bhadla(RS)-Bikaner(RS) on ERS by 30th June 2023.
- Considering the proposal of RVPN to revive 400kV Bhadla(RS)-Bikaner(RS)-1 on ERS, OCC forum asked NRLDC to do a simulation study to check if any RE curtailment would be there in this case.
- Further, with regard to SPS that needs to be implemented in case loading of 400kV Bikaner-Bikaner_2 (ERS) crosses 1750 MVA, OCC forum asked NRLDC to submit to Powergrid the SPS logic that needs to be implemented.

Decision of the OCC forum

- *Forum asked NRLDC to do a simulation study considering the proposal of RVPN to revive 400kV Bhadla(RS)-Bikaner(RS)-1 on ERS to check if any RE curtailment would be there in this case.*
- *Forum also asked NRLDC to submit to Powergrid the SPS logic that needs to be implemented in case loading of 400kV Bikaner-Bikaner_2 (ERS) crosses 1750 MVA* during of tripping of 765kV Bikaner-Khetri-1/2.

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Follow up issues from previous OCC meetings

Annexure-A.I

<table>
<tr><td>1</td><td>Down Stream network by State utilities from ISTS Station</td><td>Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.</td><td>List of downstream networks is enclosed in Annexure-A.I.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Sep-2019
◎ DELHI — Mar-2023
◎ HARYANA — May-2023
◎ HP — Jan-2023
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jan-2023
◎ RAJASTHAN — May-2023
◎ UP — May-2023
◎ UTTARAKHAND — Apr-2023
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td>3</td><td>Healthiness of defence mechanism: Self-certification</td><td>Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that “All the UFRs are checked and found functional”.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Not Available
◎ DELHI — Mar-2023
◎ HARYANA — Mar-2023
◎ HP — May-2023
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Mar-2023
◎ RAJASTHAN — Mar-2023
◎ UP — Mar-2023
◎ UTTARAKHAND — Mar-2023
◎ BBMB — Mar-2023
All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quartely basis for the rest .</td></tr>
<tr><td></td><td></td><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td>Status:
◎ CHANDIGARH — Not Available
◎ DELHI — Increased
◎ HARYANA — Increased
◎ HP — Increased
◎ J&K and LADAKH — Not increased
◎ PUNJAB — Increased
◎ RAJASTHAN — Increased
◎ UP — Increased
◎ UTTARAKHAND — Increased
◎ BBMB — Increased
J&K and LADAKH were requested to update status for increasing settings of UFRs.</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>Status of FGD installation vis-à-vis installation plan at identified TPS</td><td>List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed.
Further, progress of FGD installation work on monthly
basis is monitored in OCC
meetings.</td><td>Status of the information submission (month) from states / utilities is as under:
<table><tr><td>◎</td><td>HARYANA</td><td>Sep-2022</td></tr><tr><td>◎</td><td>PUNJAB</td><td>May-2023</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>May-2023</td></tr><tr><td>◎</td><td>UP</td><td>May-2023</td></tr><tr><td>◎</td><td>NTPC</td><td>Feb-2023</td></tr></table>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.</td></tr>
<tr><td>5</td><td>Submission of breakup of Energy Consumption by the states</td><td>All states/UTs are requested to submit the requisite data as per the billed data information in the format given as under:
<table><tr><td>Category→</td><td>Consumption by Domestic Loads</td><td>Consumption by Commercial Loads</td><td>Consumption by Agricultural Loads</td><td>Consumption by Industrial Loads</td><td>Traction supply load</td><td>Miscellaneous / Others</td></tr><tr><td><Month></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>Status of the information submission (month) from states / utilities is as under:
<table><tr><td></td><td>State / UT</td><td>Upto</td></tr><tr><td>◎</td><td>CHANDIGARH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>DELHI</td><td>Feb-23</td></tr><tr><td>◎</td><td>HARYANA</td><td>Mar-23</td></tr><tr><td>◎</td><td>HP</td><td>Mar-23</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Apr-23</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Apr-23</td></tr><tr><td>◎</td><td>UP</td><td>Jan-23</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Mar-23</td></tr></table>J&K and Ladakh and Chandigarh are requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the given format</td></tr>
<tr><td>6</td><td>Information about variable charges of all generating units in the Region</td><td>The variable charges detail for different generating units are available on the MERIT Order Portal.</td><td>All states/UTs are requested to submit daily data on MERIT Order Portal timely.</td></tr>
<tr><td>7</td><td>Status of Automatic Demand Management Sysytem in NR states/UT's</td><td>The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:</td><td>Status:
<table><tr><td>◎</td><td>DELHI</td><td>Fully implemented</td></tr><tr><td>◎</td><td>HARYANA</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>HP</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Under implementation. Likely completion schedule is 30.06.2023.</td></tr><tr><td>◎</td><td>UP</td><td>Scheme implemented by NPCIL only</td></tr></table></td></tr>
</table>

8	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVAr TCR	Anticipated commissioning: Jul'23
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under final stage inspection. GIS Bay is already available.
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under final stage inspection. GIS Bay is already available.
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vii	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
viii	PUNJAB	Dhuri	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	400kV Reactors - LOA issued on dated. 17.08.2021 and date of completion of project is 18 months from the date of LOA. 220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA. Commsioned 27th Jan'23
ix	PUNJAB	Nakodar	1x25 MVAr at 220 kV	1x25 MVAR Reactor at Nakodar has been commissioned on dated 13th February' 2023.
x	PTCUL	Kashipur	1x125 MVAR at 400 kV	Price bid has been opened and is under evaluation. Retendered in Jan'23
xi	RAJASTHAN	Akal	1x25 MVAr	1x25 MVAR Reactor at Akal has been commissioned on dated 25th July' 2022.

xii	RAJASTHAN	Bikaner	1x25 MVAr	Main bus shutdown is required for commissioning of 1x25 MVAR reactor at Bikaner, same is expected upto March' 2023.
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	1x25 MVAR Reactor at Suratgarh has been commissioned on dated 25th November' 2022.
xiv	RAJASTHAN	Barmer & others	13x25 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 &work order placed on dt. 7.04.2022 to M/s Kanohar Electricals Ltd. Schedule time is 18 months.
xv	RAJASTHAN	Jodhpur	1x125 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 &work order placed on dt. 7.04.2022 to M/s Kanohar Electricals Ltd. Schedule time is 18 months.

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.	Jun'23	02 No. of bays shall be utilized for LILO-II of 220kV Hiranagar Bishnah Transmission Line, the work of which is under progress and shall be completed by end of Jun'2023. Updated in 207th OCC by JKPTCL.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	End of 2023	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. The work is in progress and expected to be commission by the end of 2023. Updated in 204th OCC by JKPTCL.
				• 220 kV New Wanpoh - Mattan D/c Line	End of 2024	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Mattan D/c Line. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	End of 2024	02 No. of bays are proposed to be utilized for connecting 220/132 kV GSS Loolipora. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	Jul'24	Updated in 205th OCC by HVPNL
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1 Total: 7	Utilized: 5 Unutilized: 1 (1 bays to be utilized shortly) Approved/Under Implementation:1	• 220 kV D/C Shahajahanpur (PG) - Gola line	15.07.2023	Due to ROW issue work was delayd.Updated in 208th OCC by UPPTCL
				• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG)	Commissioned	Energization date: 25.02.2022 updated by UPPTCL in 196th OCC
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4 (2 bays to be utilized shortly)	• 220 kV Hamirpur-Dehan D/c line	Commissioned	Commisioned date: 09.06.2022. Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Commissioned	Updated in 202nd OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Dec'23	Issue related to ROW as intimated in 208th OCC by HVPNL.
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Apr'24	Issue related to ROW as intimated in 192nd OCC by HVPNL.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	May'24	Tender is under process Updated in 205th OCC by HVPNL.
11	400/220kV Tughlakabad	Commissioned: 6 Under Implementation: 4	Utilized: 6 Unutilized: 0	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	-	DTL to update the status.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
	GIS	Total: 10	Under Implementation:4	• 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	Sep'23	Updated in 208th OCC by HPPTCL
				• Network to be planned for 2 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.	Dec'23	Forest approval is pending for 220 KV Pali - Sector 56 D/C line. Updated in 205th OCC by HVPNL
				• LILO of both circuits of 220KV Sector 65 - Pali D/C line at Kadarpur along with augmentation of balance 0.4 sq. inch ACSR conductor of 220 kV Kadarpur - Sector 65 D/C line with 0.4sq inch AL-59 conductor	Dec'23	Updated in 205th OCC by HVPNL
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 2 Unutilized: 4	• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo	Jan'24	Updated in 208th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 205th OCC by HVPNL. **Status:-** Earlier 02 nos 220 kV line bays were to be utilized for the 220 kV GIS S/Stn. Sec-77, Gurugram but due to denotification of land of the 220 kV GIS S/Stn. Sec-77 the said substation is now going to be dismantled and a new substation is proposed at Sec-75A, Gurugram. Now, these 02 no. 220 kV line bays may be utilized at 220 kV GIS S/Stn Sec-75A, Gurugram.
15	400/220kV Prithla Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4 Under Implementation:2	• Prithla - Harfali 220kV D/c line with LILO of one ckt at Meerpur Kurali	31.03.2024	Updated in 205th OCC by HVPNL
				• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	Commissioned	Commisioned date: 31.12.2021. Updated in 198th OCC by HVPNL
				• 220kV D/C for Sector78, Faridabad	31.03.2024	Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 205th OCC by HVPNL.
				• Prithla - Sector 89 Faridabad 220kV D/c line	31.03.2024	Updated in 205th OCC by HVPNL
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	05.10.2023	Updated in 205th OCC by HVPNL
				• Sonepat - HSIISC Rai 220kV D/c line	-	Updated in 205th OCC by HVPNL. **Status:** Due to non-performance of work of 220KV GIS Rai S/Stn, the Contract has been terminated & blacklisted by O/o XEN/WB O/o CE/PD&C, HVPNL, Panchkula vide Ch-100/HDP-2418/REC-254/Xen(WB) Dated 24.02.2023. Now pending work will be caried out by HVPNL/ Departmentely

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
		Total: 8	Implementation:2	• Sonepat - Kharkhoda Pocket A 220kV D/c line	31.07.2024	Updated in 205th OCC by HVPNL. **Status:** The Possession of land for construction of 220KV S/Stn. Pocket-A i.e 6.33 Acres and for Pocket-B is 5.55 Acres has been taken over by HVPNL. Work order yet to be issued by O/o CE/PD&C, Panchkula for construction of 2 no. 220KV GIS S/Stn Pocket-A & Pocket-B.
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)	-	Work order is finalized as updated in 201st OCC by RVPNL. 5 months from layout finalization.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	Bid documents under approval as updated in 195th OCC by RVPNL.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	May'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line comiisioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	10.07.2023	• Lucknow -Kanduni, 220 kV D/C line expected energization date Jul'23 updated by UPPTCL in 208th OCC due to sub-station commissioning delay _____ • No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	15.07.2023	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line expected energization date is 15.07.2023 updated by UPPTCL in 208th OCC
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 2 bays	-	• UPPTCL intimated that 02 no. of bays under finalization stage. In 201st OCC, UPPTCL intimated that it is finalized that Khaga s/s will be connected (tentative time 1.5 years). _____ • No planning for 2 no. of bays updated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
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	Jul'23	SCDA System work pending at 220 KV S/stn. Rajokheri Updated in 205th 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	Sep'23	Updated in 205th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	Sep'23	Updated in 205th OCC by HVPNL
				• Panchkula – Raiwali 220kV D/c line	Commissioned	Updated in 194th OCC by HVPNL
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	Jul'24	Updated in 205th OCC by HVPNL
		Commissioned:7	Utilized: 6	• Amritsar – Patti 220kV S/c line	15.07.2023	Route survey/tender under process. Work expected to be completed by 15th July 2023. Updated in 208th OCC by PSTCL.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
26	400/220kV Amritsar S/s	Approved in 50th NRPC- 1 no. Total: 8	Unutilized: 1 Approved in 50th NRPC- 1 no.	• 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)	15.08.2023	Route survey/tender under process. Work expected to be completed by 15th August 2023. Updated in 208th OCC by PSTCL.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	• Bagpat - Modipuram 220kV D/c line	Commissioned	Updated in 201st OCC by UPPTCL
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra-Daultabad S/c line at 400 kV Bahadurgarh PGCIL	31.03.2024	Updated in 205th OCC by HVPNL. **Status:** Tentative route stands submitted by TS wing and accordingly BOQ has been submitted by design wing to contracts wing for award of work.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	31.03.2024	Updated in 205th OCC by HVPNL. **Status:** Tentative route stands submitted by TS wing and accordingly BOQ has been submitted by design wing to contracts wing for award of work.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	31.07.2024	
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• Network to be planned for 2 bays.	-	LILO case of 220 kV Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG) is under WTD approval as updated by RVPNL in 195th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	-	RVPNL to update the status
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 bays	-	Status:- 2nos bays are being utilised for 220 kV D/C Panchgaon (PGCIL)-Panchgaon Ckt-I & 220 kV D/C Panchagon (PGCIL)-Panchgaon Ckt-II, charged on dated 05.09.2022 & 20.10.2022 respectively. The 2nos bays may be utilised by HVPNL in future.
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	Commissioned	Saharanpur(PG)-Devband D/c line (Energization date: 20.04.2023) updated by UPPTCL in 207th OCC
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	30.06.2023	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work expected to be completed by 30.06.2023.Updated in 208th OCC by PSTCL.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	-	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is not ready.Updated in 198th OCC by HPPTCL
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC.
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	May'24	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.

FGD Status

Updated status of FGD related data submission

NTPC (27.02.2023)
MEJA Stage-I
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (17.05.2023)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (16.02.2023)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (09.06.2023)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Lalitpur Power Gen. Co. Ltd. (17.10.2022)
Lalitpur TPS
Lanco Anpara Power Ltd. (18.06.2022)
ANPARA-C TPS

HGPCL (14.09.2022)
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS

Adani Power Ltd. (18.02.2022)
KAWAI TPS

Rosa Power Supply Company (18.06.2022)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (17.10.2022)
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: 31-01-2022), INDIRA GANDHI STPP U#2 (Target: 30-09-2023), INDIRA GANDHI STPP U#3 (Target: 30-06-2023)
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: 31-12-2022), PANIPAT TPS U#7 (Target: 31-12-2022), PANIPAT TPS U#8 (Target: 31-12-2022), RAJIV GANDHI TPS U#1 (Target: 31-12-2024), RAJIV GANDHI TPS U#2 (Target: 31-12-2024), YAMUNA NAGAR TPS U#1 (Target: 31-12-2024), YAMUNA NAGAR TPS U#2 (Target: 31-12-2024)

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: 31-03-2023), RIHAND STPS U#1 (Target: 31-10-2025), RIHAND STPS U#2 (Target: 30-06-2026), RIHAND STPS U#3 (Target: 31-12-2024), RIHAND STPS U#4 (Target: 31-03-2025), RIHAND STPS U#5 (Target: 30-06-2025), RIHAND STPS U#6 (Target: 31-10-2025), SINGRAULI STPS U#1 (Target: 31-12-2024), SINGRAULI STPS U#2 (Target: 31-12-2024), SINGRAULI STPS U#3 (Target: 31-12-2024), SINGRAULI STPS U#4 (Target: 31-12-2024), SINGRAULI STPS U#5 (Target: 31-03-2025), SINGRAULI STPS U#6 (Target: 31-06-2024), SINGRAULI STPS U#7 (Target: 31-03-2024), UNCHAHAR TPS U#1 (Target: 31-12-2023), UNCHAHAR TPS U#2 (Target: 31-12-2023), UNCHAHAR TPS U#3 (Target: 30-09-2023), UNCHAHAR TPS U#4 (Target: 30-09-2023), UNCHAHAR TPS U#5 (Target: 30-09-2023), UNCHAHAR TPS U#6 (Target: 31-08-2022), MEJA Stage-I U#1 (Target: 31-10-2023), MEJA Stage-I U#2 (Target: 30-06-2023), TANDA Stage-I U#3 (Target:), TANDA Stage-I U#4 (Target:), TANDA Stage-II U#3 (Target: 31-03-2023), TANDA Stage-II U#4 (Target: 30-09-2023)

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: 31-12-2026), LALITPUR TPS U#2 (Target: 30-09-2026), LALITPUR TPS U#3 (Target: 30-06-2026)
Lanco Anpara Power Ltd.	ANPARA C TPS U#1 (Target: 31-12-2023), ANPARA C TPS U#2 (Target: 31-12-2023)
Prayagraj Power Generation Company Ltd.	PRAYAGRAJ TPP U#1 (Target: 31-12-2024), PRAYAGRAJ TPP U#2 (Target: 31-12-2024), PRAYAGRAJ TPP U#3 (Target: 31-12-2024)
PSPCL	GH TPS (LEH.MOH.) U#1 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#2 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#3 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#4 (Target: 31-12-2026), GGSSTP, Ropar U#3 (Target: 31-12-2026), GGSSTP, Ropar U#4 (Target: 31-12-2026), GGSSTP, Ropar U#5 (Target: 31-12-2026), GGSSTP, Ropar U#6 (Target: 30-12-2026)

Rosa Power Supply Company	ROSA TPP Ph-I U#1 (Target: 31-12-2026), ROSA TPP Ph-I U#2 (Target: 31-12-2026), ROSA TPP Ph-I U#3 (Target: 31-12-2026), ROSA TPP Ph-I U#4 (Target: 31-12-2026)
RRVUNL	KOTA TPS U#5 (Target: 31-08-2024), KOTA TPS U#6 (Target: 31-08-2024), KOTA TPS U#7 (Target: 31-08-2024), SURATGARH TPS U#1 (Target: 31-12-2026), SURATGARH TPS U#2 (Target: 31-12-2026), SURATGARH TPS U#3 (Target: 31-12-2026), SURATGARH TPS U#4 (Target: 31-12-2026), SURATGARH TPS U#5 (Target: 31-12-2026), SURATGARH TPS U#6 (Target: 31-12-2026), SURATGARH SCTPS U#7 (Target: 28-02-2025), SURATGARH SCTPS U#8 (Target: 28-02-2025), CHHABRA TPP U#1 (Target: 31-12-2026), CHHABRA TPP U#2 (Target: 31-12-2026), CHHABRA TPP U#3 (Target: 31-12-2026), CHHABRA TPP U#4 (Target: 31-12-2026), CHHABRA SCPP U#5 (Target: 28-02-2025), CHHABRA SCPP U#6 (Target: 28-02-2025), KALISINDH TPS U#1 (Target: 28-02-2025), KALISINDH TPS U#2 (Target: 28-02-2025)
Talwandi Sabo Power Ltd.	TALWANDI SABO TPP U#1 (Target: 28-02-2021), TALWANDI SABO TPP U#2 (Target: 31-12-2020), TALWANDI SABO TPP U#3 (Target: 31-10-2020)
UPRVUNL	ANPARA TPS U#1 (Target: 31-12-2023), ANPARA TPS U#2 (Target: 31-12-2023), ANPARA TPS U#3 (Target: 31-12-2023), ANPARA TPS U#4 (Target: 31-12-2023), ANPARA TPS U#5 (Target: 31-12-2023), ANPARA TPS U#6 (Target: 31-12-2023), ANPARA TPS U#7 (Target: 31-12-2023), HARDUAGANJ TPS U#8 (Target: 31-12-2024), HARDUAGANJ TPS U#9 (Target: 31-12-2024), OBRA TPS U#9 (Target: 31-12-2024), OBRA TPS U#10 (Target: 31-12-2024), OBRA TPS U#11 (Target: 31-12-2024), OBRA TPS U#12 (Target: 31-12-2024), OBRA TPS U#13 (Target: 31-12-2024), PARICHHA TPS U#3 (Target: 30-04-2022), PARICHHA TPS U#4 (Target: 31-12-2024), PARICHHA TPS U#5 (Target: 31-12-2024), PARICHHA TPS U#6 (Target: 31-12-2024)

RAJASTHAN RAJYA VIDYUT UTPADAN NIGAM LIMITED
(A Government of Rajasthan undertaking)
Corporate Identity Number (CIN)-U40102RJ2000SGC016484
Regd. Office & H.O.: Vidyut Bhawan, Janpath, Jyoti Nagar, Jaipur-302005
Office of the Chief Engineer (PPC& PTD)

No.RRVUNL/CE(PPC&PTD)/XEN(Tech.-Cell/AEN(Tech.-Cell)/F.-09/D.-593 Date- 20/6/23

The Member Secretary (EAC),
Chief Engineer (LD),
RRVPNL,
Heerapura, Jaipur.

Sub.:- Regarding revised Anticipated/Actual Energy Availability (Ex-Bus) (in LU/Day & MW) and Annual Maintenance Schedule of RRVUNL Power Stations for FY_2023-24 as on 20.06.2023.

Ref.:- 1. No.RRVUNL/CE(PPC&PTD)/XEN(Tech.-Cell/AEN(Tech.-Cell)/F.-09/D.-2962/Dtd.-31.03.2023.
2. No. NRPC/Operation/106/01/2023/6024-6055/Dtd.-15.06.2023 regarding Agenda of 208th OCC Meeting held on 20.06.2023.

With references to above cited subject, ***as per directions from 208th OCC, NRPC Meeting held on 20.06.2023 to defer the Planned Outages falling in the last week of August-23 & month of September-23 (as per Agenda Point No.-8)***, please find enclosed herewith the revised Anticipated/Actual Energy Availability (Ex-Bus) (in LU/Day & MW) and Annual Maintenance Schedule of RRVUNL Power Stations for FY_2023-24 as on 20.06.2023 as per enclosed **Annexure-I & II** for further needful.

Encl.:- As above.

(A K Agrawal)
Addl. Chief Engineer (PPC&PTD)

Copy submitted / forwarded to the following for information and n/a please:-
(P.K. SHARMA), XEN

1. The Managing Director, RUVNL, Jaipur.
2. The Director (Project/Technical), RRVUNL, Jaipur.
3. The Director (Technical/Operations), RRVPNL, Jaipur.
4. The Chief Engineer (RUVNL), Jaipur.
5. The TA to Hon'ble CMD, RRVUNL, Jaipur.
6. The Superintending Engineer (Operation), NRPC, GOI, New Delhi.
7. MF/OC.

Addl. Chief Engineer (PPC&PTD)

Room No.301, 3rd Floor, Rajasthali Mall, MI Road, Ajmeri Gate, Jaipur-302001.
Phone No. : 0141-4018794, Fax No. : 0141-2744521
Email : ce.ppmcit@rrvun.com, montg.rvun@gmail.com, website : www.energy.rajasthan.gov.in/rvunl

Rajasthan Rajya Vidyut Utpadan Nigam Ltd.

Daily Anticipated/Actual Energy Availability (Ex-Bus) of RRVUNL Power Stations for FY 2023-24

as on Dt.-20.06.23

Name of Power Station	Capacity (MW)		Daily Availability (EX-Bus)	Apr-23		May-23		Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
	Installed	Ex-Bus (RERC Nor.)		Anticipated	Actual	Anticipated	Actual										
SSTPS, Suratgarh	1500	1353	MW	970	962	1015	1159	1015	900	900	1015	1015	1015	1015	1015	1015	1015
			LU	232.72	230.78	243.54	278.24	243.54	216.04	216.04	243.54	243.54	243.54	243.54	243.54	243.54	243.54
SSCTPP, Suratgarh	1320	1250.7	MW	938	776	938	924	938	938	938	844	711	704	711	938	938	938
			LU	225.13	186.28	225.13	221.69	225.13	225.13	225.13	202.61	170.66	168.84	170.66	225.13	225.13	225.13
KSTPS, Kota	1240	1120.34	MW	698	913	817	981	766	777	776	840	751	840	840	744	745	840
			LU	167.51	219.00	196.15	235.55	183.77	186.45	186.24	201.66	180.18	201.66	201.66	178.53	178.70	201.66
KaSTPP, Kalisindh	1200	1137	MW	853	845	853	816	853	468	660	853	853	853	853	853	853	853
			LU	204.66	202.83	204.66	195.91	204.66	112.23	158.45	204.66	204.66	204.66	204.66	204.66	204.66	204.66
CTPP, Chhabra	1000	902	MW	592	611	633	705	507	551	677	677	507	626	677	677	677	677
			LU	142.07	146.66	151.89	169.28	121.77	132.24	162.36	162.36	121.77	150.18	162.36	162.36	162.36	162.36
CSCTPP, Chhabra	1320	1250.7	MW	938	855	938	875	860	530	666	938	938	938	938	938	938	938
			LU	225.13	205.20	225.13	209.89	206.37	127.09	159.77	225.13	225.13	225.13	225.13	225.13	225.13	225.13
RGTPP, Ramgarh	273.50	262.926	MW	145	133	145	138	145	145	184	184	184	184	184	148	75	128
			LU	34.82	32.02	34.82	33.10	34.82	34.82	44.17	44.17	44.17	44.17	44.17	35.60	18.04	30.69
MAHI, Hydel, Banswara	140	138.6	MW	8	0	0	0	0	0	0	48	0	26	37	37	34	27
			LU	1.98	0.00	0.00	0.00	0.00	0.00	0.00	11.55	0.00	6.27	8.94	8.94	8.19	6.39
TOTAL	7993.5	7415.266	MW	5142	5095	5339	5599	5084	4308	4801	5399	4959	5185	5255	5349	5274	5415
			LU	1234	1223	1281	1344	1220	1034	1152	1296	1190	1244	1261	1284	1266	1300

**Actual Energy Availability (LU/Day) is based on implemented DC as verified by SLDC, RRVPNL.*

Note:- **1. For RGTPP-GT-2, The Anticipated Energy Availability is considered zero from 01.04.2023 to 31.07.2023 due to Fire incidence occured w.e.f. 10.12.2021.**

Note:- **Assumptions taken for calculation of Anticipated EnergyAvailability (Ex-Bus) of RRVUNL Power Stations:-**

1) For SSTPS, the Availability has been taken as 75%.
2) For SSCTPP, the Availability has been taken as 75%.
3) For KSTPS, the Availability has been taken as 75%.
4) For KaSTPP, the Availability has been taken as 75%.
5) For CTPP, the Availability has been taken as 75%.
6) For CSCTPP, the Availability has been taken as 75%.
7) For RGTPP, the Availability has been taken as 70%.
   (Considering Gas availibility is 1.7 MMSCMD/Day i.e. for 100% PLF for Stg.-I&II & 85% PLF for Stg.-III. In case Gas availability is less then Energy availability may be lower).
8) **For DCCPP, In addition to the above Daily Availability, 256.34 MW/61.52 LU/80% (Ex-Bus per day) will also be available from DCCPP (330 MW) subject to permit by SLDC/RUVN to run the units on Spot Gas.**

(C.P.K. SHARMA)
XEN

Rajasthan Rajya Vidyut Utpadan Nigam Ltd.

Anticipated/Actual Annual Maintenance Schedule of RRVUNL Power Stations for FY 2023-24

as on Dt.-20.06.23

S. No.	Unit No.	Capacity (MW)	Annual Maintenance Schedule			Reasons
			From	To	Duration (Days)	
SSTPS, Suratgarh						
1	U#1	250	NR			-
2	U#2	250	NR			-
3	U#3	250	NR			-
4	U#4	250	NR			-
5	U#6	250	07.07.23	27.07.23	21	Boiler Overhauling
6	U#5	250	01.08.23	21.08.23	21	Boiler Overhauling
SSCTPP, Suratgarh						
7	U#8	660	25.09.23	15.10.23	21	Boiler Overhauling
8	U#7	660	16.11.23	15.12.23	30	Boiler Overhauling
KSTPS, Kota						
9	U#5	210	NR			-
10	U#1	110	**05.06.23**	26.06.23	22	***Under Boiler Overhauling***
11	U#2	110	23.06.23	13.07.23	21	Boiler Overhauling
12	U#4	210	25.07.23	14.08.23	21	Boiler Overhauling
13	U#7	195	01.10.23	21.10.23	21	Boiler Overhauling
14	U#3	210	01.01.24	21.01.24	21	Boiler Overhauling
15	U#6	195	01.02.24	21.02.24	21	Boiler Overhauling
KaSTPP, Kalisindh						
16	U#1	600	01.07.23	21.07.23	21	Boiler Overhauling
17	U#2	600	25.07.23	14.08.23	21	Boiler Overhauling
CTPP, Chhabra						
18	U#1	250	NR			-
19	U#2	250	NR			-
20	U#3	250	**24.05.23**	23.07.23	61	***Under Capital Overhauling***
21	U#4	250	01.10.23	09.11.23	40	Capital Overhauling
CSCTPP,Chhabra						
22	U#6	660	26.06.23	20.07.23	25	Boiler Overhauling
23	U#5	660	25.07.23	18.08.23	25	Boiler Overhauling
DCCPP, Dholpur						
24	GT#1	110	NR			-
25	GT#2	110				
26	STG	110				
RGTPP, Ramgarh						
27	GT-2	37.5	NR			-
28	STG-I	37.5	NR			-
29	GT-I	35.5	01.01.24	30.01.24	30	Replacement of Diffuser and Exhaust Planuum
30	GT-3	110	01.02.24	16.03.24	45	Major Inspection & Planned Maintenance
31	STG-II	50	01.02.24	16.03.24	45	Planned Maintenance

(P.K. SHARMA), XEN

I/28436/2023

Annexure-A.III

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन-I प्रभाग
Power System Planning & Appraisal-I Division

सेवा में / To,

1. COO, CTUIL, Saudamini, Plot No. 2, Sector-29, Gurugram-122001
2. Chief Engineer, PDD Ladakh, UT of Ladakh
3. Chief Engineer (Transmission, Kashmir), JKPTCL, PDD Complex, Bemina, Srinagar, UT of J&K
4. ED (NR-II), POWERGRID, OB-26, GRID Bhawan, Rail Head Complex, Near Bahu Plaza, Jammu (UT of J&K) - 180012

विषय/Subject: Minutes of the meeting held for deliberation on the issue related to the reliability of power supply for UT of Ladakh - reg.

महोदय / Sir,

Please find enclosed the minutes of the meeting under the chairmanship of Member (Power System) for deliberation on the issue related to the reliability of power supply for UT of Ladakh held in CEA on 06.06.2023.

भवदीय / Yours faithfully,

20/06/2023

(नितिन देसवाल / Nitin Deswal)
उप-निदेशक / Deputy Director

Copy to (for information):

1. SA to Member (PS), CEA
2. Member Secretary (NRPC), 18-A, Qutab Institutional Area, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016

Minutes of the meeting held on 06.06.2023 for deliberation on the issue related to the reliability of power supply for UT of Ladakh

List of Participants is attached as Annexure-I.

Background

PDD Ladakh, vide letter dated 22.05.2023 to NRPC and letter dated 05.06.2023 to CEA, has highlighted the issue of reliability of power supply to UT of Ladakh to meet the increasing demand. PDD, Ladakh vide their letters has submitted the following:

1. Ladakh is connected to the National Grid through 220 kV S/c line from Alusteng (JKPTCL) – Drass (PG). The line suffered tower collapse in Feb 2019 due to avalanche and it took almost 5 months to restore the transmission line.
2. The Peak demand of Ladakh region during the winter of 2023 had reached about 70 MW, however, the power availability within Ladakh during the winter season was about 17 MW. Therefore, due to huge gap of around 53 MW in demand and generation, most of the electricity demand of Ladakh during winter season was met through the 220 kV Srinagar Leh S/c Transmission line.
3. PDD Ladakh has proposed for augmentation of the transmission system to ensure that the electricity demand of UT of Ladakh is met in the scenario of outage of the 220 kV Srinagar Leh S/c Transmission line.

The issue was also deliberated in the 64th NRPC meeting on 24.03.2023 and in the VC meeting with CEA, NRPC, CTUIL and POWERGRID held on 01.06.2023.

Deliberations in the meeting

PDD Ladakh raised the issue of the adverse effects on the power supply to Ladakh in case of outage of 220 kV SLTS line which is passing through high mountain ranges and avalanche prone areas. Considering the above, PPD Ladakh proposed for redundant 220 kV line between Drass and Alustung for improved reliability of power supply to Ladakh.

As informed in the meeting, the following projects are either under planning or implementation phase:

1. Laying of cable (800 sq mm XLPE power cable) between Minamarg and Zojila Top section (15 km) of Alusteng – Drass 220 kV section of SLTS line, being implemented by POWERGRID. It was informed in the meeting by POWERGRID that cable laying works would be completed by next season i.e by October, 2024.
2. Transmission system for the proposed Solar Park (2.5 GW) in Kargil (Zangla/Zanskar area), for which 400 kV Zangla - Drass - New Alusteng - New Wanpoh (anchoring at 220 kV Drass and Alusteng) D/c line has been envisaged.
3. 220 kV interconnection from Pang RE Park to Leh/Phyang. The interconnection would come in the matching timeframe of the Pang RE Park. Regarding the time frame of Pang RE project, it was informed that some studies are being carried for the transmission system at high altitudes and after the commencement of the transmission scheme, the system would take around 5 years for completion.

4. 50 MW Solar Park with 2.5 Hr BESS under implementation by SECI in Ladakh which would be connected with 66 kV Leh (Phyang) S/s.
5. For providing power supply to NHIDCL to carry out works of Zojila and Z-morh tunnels, two substations have been agreed. On the western portal, 220/33 kV Nilgrar (Gagangeer) by LILO of 220 kV SLTS line and on the eastern portal 66/11 kV Mughalpura substation which is to be connected with 220/66 kV Drass (PG) through 66 kV D/c line. PGCIL is implementing these works for NHIDCL and intimated that works for Eastern Portal have already been awarded with scheduled completion in 2025 and for Western Portal, the works would be awarded shortly.

Member (Power Systems), CEA, stated that the execution of transmission projects in the hilly terrains of Ladakh and J&K is tough and the implementation period is long; therefore, long term approach should be taken while planning for transmission system in the area.

The various options deliberated in the meeting are as follow:

1. **400 kV transmission line (to be charged initially at 220 kV level) from Alusteng/Srinagar to Drass**

- The line would provide additional corridor at 220 kV level from Alusteng-Srinagar/Nilgrar (J&K) to Drass (Ladakh). The line would be extended and charged at 400 kV in the timeframe of 2.5 GW solar park at Zagla/Zanskar. SECI/MNRE would be asked to confirm the status of 2.5 GW Solar Park in Kargil/Zanskar.
- CTUIL stated that the 400 kV D/c tower would be of Quad bundle conductor due to high altitude and there may be reactive power management challenges with additional lines. Issues may further increase in summer season due to the lower demand in Ladakh as compared to winters.
- The 400 kV transmission system could be taken up once there is clear visibility of setting up the 2.5 GW solar park in Zangla/Zanskar from SECI/MNRE. .

2. **Laying of 220 kV Cable/line from Nilgrar/Gagangeer (J&K) to Drass (Ladakh)**

- PDD Ladakh suggested that a new 220 kV line or cable could be proposed from 220/33 kV substation at Nilgrar (Gagangeer) at the western portal of Zojila tunnel to Drass (Ladakh). This line would be parallel to the existing line and would provide 'N-1' contingency in that section of SLTS line which is more prone to avalanche. The approximate distance of the line/cable would be about 60 kms.
- On query regarding the availability of RoW/corridor for implementation of another transmission line through the Zojila section, POWERGRID informed that there is very narrow corridor available for implementation of another EHV line; however, after utilization of that corridor, there may not be any corridor available for construction of another EHV line in future.

- CTUIL stated that despite laying of additional line between Nilgrar/Gagangeer to Drass section of SLTS, the whole system would not be 'N-1' compliant as the section from Alusteng to Gangangeer/Nilgrar would still be 220 kV line on S/c towers.
- PDD, Ladakh stated that the section around the Zojila top is the most vulnerable section of the SLTS line; therefore, strengthening of that section by providing additional line has been proposed.
- POWERGRID informed that laying of cable between Minamarg and Zojila Top section (15 km) of Alusteng – Drass 220 kV section of SLTS line was agreed solely to provide the strengthening in the most vulnerable section of SLTS. Further, these works would be completed by next season (October, 2024) and it would take care of the concerns of Ladakh PDD, about the vulnerability of SLTS line passing through avalanche prone zone, to some extent. PDD Ladakh also concurred to the same.

On the suggestion of CEA for laying of 66 kV cable through the Zojila tunnel from Nilgrar substation (with creation of 66 kV level) and Mugalpura substation, Ladakh PDD informed that NHDICL would not allow laying of EHV cable through the tunnel. Further space availability for creation of 66 kV level at Nilgrar S/s would also need to be explored by NHIDCL/POWERGRID.

It was also suggested that Ladakh may explore the possibility of implementation of small scale distributed RE projects with BESS, that would cater the local demand in Ladakh region techno-economically.

After detailed deliberations, following was agreed:

1. As the long term solution, 220 kV interconnection from Pang RE Park to Leh/Phyang has already been agreed and after completion of which, Ladakh would have two independent interconnections from the National Grid.
2. POWERGRID is already laying the cable from Minamarg to Zojila Top section (15 km) of Alusteng – Drass 220 kV section of SLTS line, which would improve the reliability of SLTS line and also addresses PDD Ladakh's reliability concern in Avalanche prone area.

Annexure-I

List of Participants of the meeting

Date: 06.06.2022

CEA

1. Sh. AK Rajput - Member (PS)
2. Sh. Ishan Sharan - Chief Engineer
3. Smt. Manjari Chaturvedi - Director
4. Sh. Nitin Deswal - Deputy Director
5. Ms. Komal Dupare - Asst. Director
6. Sh. Kanhaiya Singh Kushwaha - Asst. Director

CTUIL

1. Sh. Kashish Bhambhani - GM
2. Ms. Anikta Singh - Chief Manager

PDD Ladakh

1. Sh. Tsewang Paljor - Chief Engineer

POWERGRID

1. Sh. Anil Sharma – CGM (Projects) NR-II

Bikaner_2 ERS study proposal in respect of SD of 400kV Bikaner(PG)-Bikaner(RS) D/C

Basecase Assumptions		Expected restoration
Rajasthan Demand	15500 MW	NA
Rajasthan Solar	2900 MW (restricted)	NA
Rajasthan Wind	1800 MW (restricted)	NA
STATCOM -1 & 2 @ Bhadla_2	in service	NA
400kV Bhadla(RS)-Bikaner(RS) D/C	out of service	27.08.2023
400kV Bhadla-Jodhpur	out of service	05.07.2023
400kV Akal-jodhpur	out of service	after 15.07.2023
400kV Jaisalmer-Barmer D/C	out of service	15.07.2023
400kV Bikaner_2-Khetri D/C	in service	NA

RAJASTHAN WIND 1800 and RAJASTHAN SOLAR 2900 MW											
Element	Basecase Loading / Voltage	Case 1: Outage of 400kV Bikaner(PG)-Bikaner(RS) D/C	Case 1 without STATCOM 1&2 @ Bhadla_2	Case 2 : Charging of 400kV Bikaner(PG)-Bikaner_2-1 on ERS	Case 2 without STATCOM 1&2 @ Bhadla_2	Case 3 : Charging of 400kV Bikaner(PG)-Bikaner(RS)-1 on case 2	Case 4 : Final charging of 400kV Bikaner(PG)-Bikaner_2 D/C	Case 4 without STATCOM 1&2 @ Bhadla_2	Case 5 : Revival of 400kV Bhadla-Jodhpur over Case 4	Case 6 : Revival of 400kV Jaisalmer Barmer DC over Case 5	Case 7 : Revival of 400kV Akal Jodhpur over Case 6
		Backing required : 1023 MW @ Bikaner(PG) + 700 MW @ Fatehgarh_1	Backing required : 1023 MW @ Bikaner(PG) + 700 MW @ Fatehgarh_1 + 500 MW @ Fatehgarh_2	Backing required : 200 MW @ Fatehgarh_1 (Due to 150 MVAR dynamic MVAR deficit @ Fatehgarh_2)	Backing required : 700 MW @ Fatehgarh_1 + 400 MW @ Fatehgarh_2		Backing required : 100 MW @ Fatehgarh_1 (Due to 50 MVAR dynamic MVAR deficit @ Fatehgarh_2)	Backing required : 700 MW @ Fatehgarh_1 + 300 MW @ Fatehgarh_2	Full Rajasthan Solar Backing required : 100 MW @ Fatehgarh_1 (Due to 50 MVAR dynamic MVAR deficit @ Fatehgarh_2)	Full Rajasthan Solar Backing required : 100 MW @ Fatehgarh_1 (Due to 50 MVAR dynamic MVAR deficit @ Fatehgarh_2)	Full Rajasthan Solar Full ISGS RE
400 kV Bikaner(PG)-Bikaner(RS)-1	1172	0	0	0	0	1579	0	0	0	0	0
400 kV Bikaner(PG)-Bikaner(RS)-2	1172	0	0	0	0	0	0	0	0	0	0
400kV Bikaner(PG)-Bikaner_2 (ERS)	0	0	0	1544	1481	1137	0	0	0	0	0
400kV Bikaner(PG)-Bikaner_2 D/C final	0	0	0	0	0	0	1792	1720	1792	1786	1792
765kV Bhadla-Bikaner -1	1765	1548	1479	1645	1512	1751	1676	1543	1687	1676	1687
765kV Bhadla-Bikaner -2	1765	1548	1479	1645	1512	1751	1676	1543	1687	1676	1687
765kV Bhadla_2-Bikaner -1	994	796	757	870	787	998	899	816	913	910	918
765kV Bhadla_2-Bikaner -2	994	796	757	870	787	998	899	816	913	910	918
765 kV Bhadla_2-Ajmer-1	1587	1612	1529	1668	1525	1521	1658	1517	1652	1638	1648
766 kV Bhadla_2-Ajmer-1	1587	1612	1529	1668	1525	1521	1658	1517	1652	1638	1648
765kV Bikaner-Moga-1	1353	1394	1355	1422	1351	1310	1409	1340	1422	1418	1424
765kV Bikaner-Moga-2	1353	1394	1355	1422	1351	1310	1409	1340	1422	1418	1424
765kV Bikaner-Khetri-1	1788	2000	1936	1869	1762	1635	1820	1717	1831	1825	1833
765kV Bikaner-Khetri-2	1788	2000	1936	1869	1762	1635	1820	1717	1831	1825	1833
765kV Fatehgarh_2-Bhadla-1	727	556	450	668	474	691	694	500	693	698	721
765kV Fatehgarh_2-Bhadla-2	727	556	450	668	474	691	694	500	693	698	721
765kV Fatehgarh_2-Bhadla_2-1	1280	1123	999	1247	1022	1225	1268	1043	1267	1263	1285
765kV Fatehgarh_2-Bhadla_2-2	1280	1123	999	1247	1022	1225	1268	1043	1267	1263	1285
400 kV AREPRL Voltage	387	397	416	391	414	394	389	413	388	388	385
765kV Fatehgarh_2 Volatage	746	758	793	750	788	754	748	787	746	747	743
765kV Bhadla_2 Voltage	761	765	792	760	789	764	760	788	759	759	758
765kV Bhadla Voltage	756	762	792	757	788	762	756	787	753	755	753
765kV Bikaner Voltage	759	761	786	757	783	765	758	784	755	756	755
Station	**Fault level (MVA)**	**Fault level (MVA)**		**Fault level (MVA)**		**Fault level (MVA)**	**Fault level (MVA)**		**Fault level (MVA)**	**Fault level (MVA)**	**Fault level (MVA)**
400kV BIKANER_PG	24790	15980		19276		25304	19905		20079	20087	20087
400 kV BHADLA-PG	20685	19535		20011		20688	20086		21130	21172	21173
400kV BHADLA II	19671	18595		19030		19667	19099		19620	19641	19641
400 kV FATEHGARH-II	14328	13681		13941		14324	13982		14182	14191	14191
400kV FATEHGARH_1	9839	9534		9657		9837	9677		9771	9775	9775
765kV BIKANER-PG	32956	27543		29495		32872	29818		30313	30336	30336
765kV BHADLA-PG	23050	21170		21910		23038	22028		22692	22719	22720
765kV BHADLA II	26092	24192		24938		26075	25056		25569	25591	25591
765kV FATEHGARH-II	19076	17926		18383		19067	18455		18813	18828	18828

RAJASTHAN WIND 500 MW and FULL RAJASTHAN SOLAR

Element	Basecase Loading / Voltage	Case 1: Outage of 400kV Bikaner(PG)-Bikaner(RS) D/C Backing required : 1023 MW @ Bikaner(PG) + 400 MW @ Fatehgarh_1	Case 2 : Charging of 400kV Bikaner(PG)-Bikaner 2-1 on ERS Backing required : 300 MW @ Fatehgarh_1	Case 3 : Charging of 400kV Bikaner(PG)-Bikaner(RS)-1 on case 2	Case 4 : Final charging of 400kV Bikaner(PG)-Bikaner 2 D/C Backing required : 200 MW @ Fatehgarh_1	Case 5 : Revival of 400kV Bhadla-Jodhpur over Case 4 Full ISGS RE
400 kV Bikaner(PG)-Bikaner(RS)-1	1206	0	0	1635	0	0
400 kV Bikaner(PG)-Bikaner(RS)-2	1206	0	0	0	0	0
400kV Bikaner(PG)-Bikaner_2 (ERS)	0	0	1546	1124	0	0
400kV Bikaner(PG)-Bikaner_2 D/C final	0	0	0	0	1794	1764
765kV Bhadla-Bikaner -1	1768	1583	1622	1731	1653	1593
765kV Bhadla-Bikaner -2	1768	1583	1622	1731	1653	1593
765kV Bhadla_2-Bikaner -1	992	809	846	978	876	870
765kV Bhadla_2-Bikaner -2	992	809	846	978	876	870
765 kV Bhadla_2-Ajmer-1	1598	1689	1677	1526	1668	1611
766 kV Bhadla_2-Ajmer-1	1598	1689	1677	1526	1668	1611
765kV Bikaner-Moga-1	1335	1405	1396	1281	1383	1367
765kV Bikaner-Moga-2	1335	1405	1396	1281	1383	1367
765kV Bikaner-Khetri-1	1770	2035	1847	1605	1798	1766
765kV Bikaner-Khetri-2	1770	2035	1847	1605	1798	1766
765kV Fatehgarh_2-Bhadla-1	724	616	642	665	667	738
765kV Fatehgarh_2-Bhadla-2	724	616	642	665	667	738
765kV Fatehgarh_2-Bhadla_2-1	1283	1206	1227	1204	1248	1268
765kV Fatehgarh_2-Bhadla_2-2	1283	1206	1227	1204	1248	1268
400 kV AREPRL Voltage	386	393	392	395	391	387
765kV Fatehgarh_2 Volatage	745	751	750	755	749	746
765kV Bhadla_2 Voltage	760	761	760	765	761	760
765kV Bhadla Voltage	754	757	756	761	756	755
765kV Bikaner Voltage	759	757	757	765	758	758

Note :

In case of tripping of 765kV Bikaner-Khetri-1/2,loading on 400kV Bikaner-Bikaner_2 (ERS) would go beyound its thermal rating. SPS needs to be implemented in case loading of 400kV Bikaner-Bikaner_2 (ERS) crosses 1750 MVA.

Observation :

1. To facilitate the SD of 400kV Bikaner(PG)-Bikaner (RS) D/C without ERS option, a total STOA curtailement of 1423-1723 MW would be required
2. STOA curtailment of 200-300 MW would be required if quad moose ERS on 400kV Bikaner-Bikaner_2 becomes operational
3. Simultaneous operation of ERS and 400kV Bikaner(PG)-Bikaner(RS)-1 is not desirable as the loading of later would increase beyond the permissible line loading limit of 1450 MVA.
4. With final commissioning of 400kV Bikaner-Bikaner_2 D/C, STOA curtailement of 100-200 MW at Fatehgarh_1 would be required for keeping the RE pocket n-1 compliant
5. With revival of 400kV Rajasthan lines in gradual manner as indicated above, generation restriction of Rajasthan Solar and STOA curtailement would be removed.
6. **It may be noted that incase of revival of 400kV Bhadla(RS)-Bikaner(RS) D/C, no curtailment of Rajasthan Solar or ISGS RE would be there after commissioning of 400kV Bikaner-Bikaner_2 DC**