सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

विषय: प्रचालन समन्वय उप-समिति की 215वीं बैठक की कार्यसूची।

Subject: Agenda of the 215th OCC meeting.

प्रचालन समन्वय उप-समिति की **215वीं** बैठक दिनांक **12.01.2024** (**सुबह 09:30**) वाराणसी, उत्तर प्रदेश में होगी। बैठक की मेजबानी यूपीपीटीसीएल द्वारा की जा रही है। उक्त बैठक की कार्यसूची संलग्न है। कृपया बैठक में भाग लेने की कृपा करें।

यह अनुरोध किया जाता है कि प्रतिभागी (**प्रत्येक सदस्य संगठन से एक**) एनआरपीसी सचिवालय को अपनी यात्रा का विवरण एक्सेल शीट लिंक पर निर्धारित प्रारूप में 08.01.2024 तक सूचित कर सकते हैं।

The **215th** meeting of the Operation Co-ordination sub-committee (**OCC**) will be held on **12.01.2024** (**09:30 A.M.)** at Varanasi, Uttar Pradesh. Meeting is being hosted by UPPTCL. Agenda for the same is attached. Kindly make it convenient to attend the meeting.

It is requested that participants (**one each from member organization**) may intimate NRPC Secretariat, their journey details latest by 08.01.2024 in prescribed format at excel sheet link enclosed in the mail.

Nodal officer(s) for facilitating meeting are as below:

Name	Designation	Contact No
Er. Pankaj Saxena	Superintending Engineer- UPPTCL	+91-9415902780
Er. A.J. Siddiqui	Chief Engineer- UPSLDC	+91-9415609363

Signed by D. K. Meena
Date: 05-01-2024 16:47:22
Reason: Approved

(डी. के. मीना)
अधीक्षण अभियंता (प्रचालन)

List of addressee (via mail)			
OCC Members for FY 2023-24			
S. No.	**OCC Member**	**Category**	**E-mail**
1	CTUIL	Central Transmission Utility	kashish@powergrid.in
2	PGCIL	Central Government owned Transmission Company	ravindrangupta@powergrid.in
3	NLDC	National Load Despatch Centre	nomination awaited
4	NRLDC	Northern Regional Load Despatch Centre	alok.kumar@grid-india.in
5	NTPC	Central Generating Company	hrastogi@ntpc.co.in
6	BBMB		powerc@bbmb.nic.in
7	THDC		rrsemwal@thdc.co.in
8	SJVN		sjvn.cso@sjvn.nic.in
9	NHPC		vijayk@nhpc.nic.in
10	NPCIL		nomination awaited
11	Delhi SLDC	State Load Despatch Centre	nomination awaited
12	Haryana SLDC		cesocomml@hvpn.org.in
13	Rajasthan SLDC		ce.ld@rvpn.co.in
14	Uttar Pradesh SLDC		cepso@upsldc.org
15	Uttarakhand SLDC		se_sldc@ptcul.org
16	Punjab SLDC		ce-sldc@pstcl.org
17	Himachal Pradesh SLDC		cehpsldc@gmail.com
18	DTL	State Transmission Utility	nomination awaited
19	HVPNL		cetspkl@hvpn.org.in
20	RRVPNL		ce.ppm@rvpn.co.in
21	UPPTCL		smart.saxena@gmail.com
22	PTCUL		ce_oandmk@ptcul.org
23	PSTCL		ce-tl@pstcl.org
24	HPPTCL		nomination awaited
25	IPGCL	State Generating Company	nomination awaited
26	HPGCL		seom2.rgtpp@hpgcl.org.in
27	RRVUNL		ce.ppmcit@rrvun.com
28	UPRVUNL		cgm.to@uprvunl.org
29	UJVNL		gm_engg_ujvn@yahoo.co.in
30	HPPCL		nomination awaited
31	PSPCL	State Generating Company & State owned Distribution Company	ce-ppr@pspcl.in
32	DHBVN	State owned Distribution Company (alphabetical rotaional basis/nominated by state govt.)	cecommercial@dhbvn.org.in
33	Jaipur Vidyut Vitran Nigam Ltd.		acempit@jvvnl.org
34	Madhyanchal Vidyut Vitaran Nigam Ltd.		commvvnl@gmail.com

35	UPCL		cgmupcl@yahoo.com
36	HPSEB		nomination awaited
37	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	sanjay.bhargava@tatapower.com
38	Aravali Power Company Pvt. Ltd		amit.hooda01@gmail.com
39	Apraave Energy Ltd.,		rajneesh.setia@apraava.com
40	Talwandi Sabo Power Ltd.		nomination awaited
41	Nabha Power Limited		Durvesh.Yadav@larsentoubro.com
42	Lanco Anpara Power Ltd		nomination awaited
43	Rosa Power Supply Company Ltd		Suvendu.Dey@relianceada.com
44	Lalitpur Power Generation Company Ltd		avinashkumar.ltp@lpgcl.com
45	MEJA Urja Nigam Ltd.		anilkumar02@ntpc.co.in
46	Adani Power Rajasthan Limited		manoj.taunk@adani.com
47	JSW Energy Ltd. (KWHEP)		roshan.zipta@jsw.in
48	RENEW POWER	IPP having less than 1000 MW installed capacity (alphabetical rotaional basis)	sumant@renew.com
49	UT of J&K	From each of the Union Territories in the region, a representative nominated by the administration of the Union Territory concerned out of the entities engaged in generation/ transmission/ distribution of electricity in the Union Territory.	sojpdd@gmail.com
50	UT of Ladakh		cepdladakh@gmail.com
51	UT of Chandigarh		elop2-chd@nic.in
52	BYPL	Private Distribution Company in region (alphabetical rotaional basis)	jitendra.nalwaya@relianceada.com
53	Bikaner Khetri Transmission Limited	Private transmission licensee (nominated by central govt.)	Abhishek.Kukreja@adani.com
54	Adani Enterprises	Electricity Trader (nominated by central govt.)	mayursinhd.gohil@adani.com
55	Ajmer Vidyut Vitran Nigam Ltd.	Special Invitee for FY 2023-24	ce.ruvnl@rajasthan.gov.in

उत्तर क्षेत्रीय विद्युत समिति
NORTHERN REGIONAL POWER COMMITTEE

Agenda of the
215th meeting of
Operational Co-ordination Sub-Committee
of
Northern Regional Power Committee

Date: 12th January 2024
Time: 09:30 AM

Venue: The Clarks Hotel, Varanasi
The Mall Rd, Cantonment, Varanasi,
Uttar Pradesh

Contents

खण्ड-क: उ.क्षे.वि.स. Part-A: NRPC

A.1. Confirmation of Minutes

214th OCC meeting was held on 19.12.2023. Minutes of the meeting were issued vide letter dt. 29.12.2023.

Decision required from Forum:

Forum may approve the minutes of 214th OCC meeting.

A.2. Review of Grid operations

A.2.1. Power Supply Position (Provisional) for December 2023

Anticipated Power Supply Position v/s Actual Power Supply Position (Provisional) of Northern Region during the month of December-2023 is as under:

State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	110	117	6.8%	260	258	-0.8%
	(Req)	120	117	-2.1%	290	258	-11.0%
DELHI	(Avl)	3319	2228	-32.9%	5300	4582	-13.5%
	(Req)	2150	2228	3.6%	5300	4582	-13.5%
HARYANA	(Avl)	5200	4417	-15.1%	11510	8225	-28.5%
	(Req)	4386	4418	0.7%	8410	8225	-2.2%
HIMACHAL PRADESH	(Avl)	1128	1091	-3.3%	2052	2162	5.4%
	(Req)	1127	1093	-3.1%	2067	2162	4.6%
J&K and LADAKH	(Avl)	1170	1809	54.6%	3860	2904	-24.8%
	(Req)	2050	1822	-11.1%	3100	2904	-6.3%
PUNJAB	(Avl)	5240	4414	-15.8%	10850	8041	-25.9%
	(Req)	4550	4414	-3.0%	8500	8041	-5.4%
RAJASTHAN	(Avl)	8850	9339	5.5%	18700	17570	-6.0%
	(Req)	9826	9343	-4.9%	17616	17570	-0.3%
UTTAR PRADESH	(Avl)	10540	9824	-6.8%	21000	19874	-5.4%
	(Req)	10385	9894	-4.7%	21000	19874	-5.4%
UTTARAKHAND	(Avl)	1246	1263	1.3%	2350	2224	-5.4%
	(Req)	1280	1267	-1.0%	2395	2417	0.9%
NORTHERN REGION	(Avl)	36804	34502	-6.3%	73800	61400	-16.8%
	(Req	35875	34596	-3.6%	63000	61400	-2.5%

	)						

As per above, negative / significant variation (≥5%) in Actual Power Supply Position (Provisional) vis-à-vis Anticipated figures is observed for the month of December-2023 in terms of Energy Requirement for Chandigarh, HP, UTs of J&K and Ladakh, Punjab, Rajasthan, UP, and Uttarakhand and in terms of Peak Demand similar variation is noted for Chandigarh, Delhi, Haryana, UTs of J&K and Ladakh, Punjab, Rajasthan, UP. These states/UTs are requested to submit reason for such variations so that the same can be deliberated in the meeting.

All SLDCs are requested to furnish provisional and revised power supply position in prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively for the compliance of Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.

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

A.3.1 Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of February-2024 is scheduled on 09-January-2024 via Video Conferencing

A.3.2 Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of February-2024 is scheduled on 09-January-2024 via Video conferencing.

A.4. Planning of Grid Operation

A.4.1. Anticipated Power Supply Position in Northern Region for February 2024

The Anticipated Power Supply Position in Northern Region for February 2024 is as under:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	110	300	No Revision submitted
	Requirement	126	260	
	Surplus / Shortfall	-16	40	
	% Surplus / Shortfall	-12.7%	15.4%	
DELHI	Availability	1870	5460	No Revision submitted
	Requirement	2040	5220	
	Surplus / Shortfall	-170	240	
	% Surplus / Shortfall	-8.3%	4.6%	
HARYANA	Availability	4790	11610	No Revision

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Requirement	4039	8900	submitted
	Surplus / Shortfall	751	2710	
	% Surplus / Shortfall	18.6%	30.4%	
HIMACHAL PRADESH	Availability	510	3110	No Revision submitted
	Requirement	920	2120	
	Surplus / Shortfall	-410	990	
	% Surplus / Shortfall	-44.6%	46.7%	
J&K and LADAKH	Availability	1110	4130	No Revision submitted
	Requirement	1810	3090	
	Surplus / Shortfall	-700	1040	
	% Surplus / Shortfall	-38.7%	33.7%	
PUNJAB	Availability	5000	10930	No Revision submitted
	Requirement	3856	7865	
	Surplus / Shortfall	1144	3065	
	% Surplus / Shortfall	29.7%	39.0%	
RAJASTHAN	Availability	8030	18590	No Revision submitted
	Requirement	8700	16250	
	Surplus / Shortfall	-670	2340	
	% Surplus / Shortfall	-7.7%	14.4%	
UTTAR PRADESH	Availability	9570	19000	03-Jan-24
	Requirement	9425	19000	
	Surplus / Shortfall	145	0	
	% Surplus / Shortfall	1.5%	0.0%	
UTTARAKHAND	Availability	710	2730	No Revision submitted
	Requirement	1130	2460	
	Surplus / Shortfall	-420	270	
	% Surplus / Shortfall	-37.2%	11.0%	
NORTHERN REGION	Availability	31700	70700	
	Requirement	32046	60800	
	Surplus / Shortfall	-346	9900	
	% Surplus / Shortfall	-1.1%	16.3%	

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of February-2024 and submit the measures proposed to be taken to bridge the gap between demand & availability, as well to dispose-off the surplus, if any, in the prescribed format.

A.5. Follow-up of issues from previous OCC Meetings- Status update.

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

All utilities are requested to update the status.

A.6. NR Islanding scheme

Latest status of Islanding Scheme of NR is attached as **Annexure-A.II.**

Members may kindly deliberate.

A.7. Coal Supply Position of Thermal Plants in Northern Region

A.7.1. In 186th OCC meeting, it was agreed that coal stock position of generating stations in northern region may be reviewed in the OCC meetings on the monthly basis.

A.7.2. Accordingly, coal stock position of generating stations in northern region during current month (till 03rd January 2024) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	0.43	16	24.8
ANPARA TPS	2630	0.69	16	21.2
BARKHERA TPS	90	0.68	24	14.4
DADRI (NCTPP)	1820	0.73	24	9.0
GH TPS (LEH.MOH.)	920	0.49	24	20.6
GOINDWAL SAHIB TPP	540	0.60	24	1.7
HARDUAGANJ TPS	1265	0.69	24	12.4
INDIRA GANDHI STPP	1500	0.79	24	20.2
KAWAI TPS	1320	0.89	24	6.6
KHAMBARKHERA TPS	90	0.69	24	11.6
KOTA TPS	1240	0.80	24	6.0
KUNDARKI TPS	90	0.67	24	31.1
LALITPUR TPS	1980	0.76	24	15.1
MAHATMA GANDHI TPS	1320	0.84	24	12.2
MAQSOODPUR TPS	90	0.68	24	14.8
MEJA STPP	1320	0.86	24	11.1
OBRA TPS	1094	0.47	24	7.9
PANIPAT TPS	710	0.54	24	30.7
PARICHHA TPS	1140	0.48	24	17.5
PRAYAGRAJ TPP	1980	0.55	24	15.9
RAJIV GANDHI TPS	1200	0.35	24	14.3
RAJPURA TPP	1400	0.85	24	20.6

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
RIHAND STPS	3000	0.82	16	29.6
ROPAR TPS	840	0.61	24	26.5
ROSA TPP Ph-I	1200	0.76	24	4.2
SINGRAULI STPS	2000	0.89	16	14.9
SURATGARH TPS	1500	0.48	24	4.1
TALWANDI SABO TPP	1980	0.34	24	4.9
TANDA TPS	1760	0.72	24	11.9
UNCHAHAR TPS	1550	0.65	24	11.1
UTRAULA TPS	90	0.34	24	34.6
YAMUNA NAGAR TPS	600	0.74	24	18.6
CHHABRA-I PH-1 TPP	500	0.80	24	**1.8**
KALISINDH TPS	1200	0.33	24	5.4
SURATGARH STPS	1320	0.01	24	7.8
CHHABRA-I PH-2 TPP	500	0.85	24	**1.0**
CHHABRA-II TPP	1320	0.71	24	4.5

A.8. Status of availability of ERS towers in Northern Region (Agenda by NRPC Sectt.)

A.8.1. In the 68th meeting of NRPC issues arising due to non-availability of sufficient ERS were discussed and it was decided that ERS availability monitoring shall be taken as rolling/follow-up agenda in OCC meetings for regular monitoring of ERS under different utilities in Northern region.

A.8.2. Subsequently matter was deliberated in 211th OCC meeting wherein NRLDC representative briefed about the Requirement of ERS, recent experience in Northern Region, CEA Regulation on ERS, Govt. Guidelines and Present situation on ERS.

A.8.3. NRPC Sectt. vide letter dated 26.09.2023 requested all transmission utilities of NR to furnish the length of transmission line (ckt-kms) and number of ERS towers available with them at different voltage levels (e.g. 220 kV, 400 KV 765 KV and + -500 kV HVDC via email at seo-nrpc@nic.in.

A.8.4. In this regard, inputs received from utilities are attached as **Annexure-A.III.**

Transmission utilities of NR to update status.

A.9. Draft Outage Planning procedure of Northern region (Agenda by NRPC Sectt.)

A.9.1. As per Regulation 32(4) of Indian Electricity Grid code (IEGC) 2023, RPCs are required to formulate a common outage planning procedure.

A.9.2. Draft common outage planning procedure of Northern Procedure is attached as **Annexure-A.IV.** for views/comments of stakeholders/constituents of Northern

Region.

Members may kindly deliberate.

A.10. Furnishing requirements of number of licenses by utilities for protection setting calculation tool (Agenda by NRPC Sectt.)

A.10.1 In 48th TCC & 70th NRPC Meeting (held on 17-18 Nov 2023), NRPC Committee has approved for development of a portal through PSDF for Centralized database containing details of relay settings for grid elements connected to 220 kV and above. Portal shall have other features including protection setting calculation tool. Approved scope of portal is attached as **Annexure-A.V.**

A.10.2 In above meeting, utilities were requested to give their requisition for number of licences latest by 30.11.2023 required for calculation tool for preparation of estimate of work as project cost will depend on number of licenses required in Northern Region.

A.10.3 NRPC Secretariat is taking up the modalities of tendering with POWERGRID. Utilities may finalize their requirement of licences.

Members may kindly deliberate.

A.11. Proposed SPS for 2X315 MVA, 400/220kV ICTs at Suratgarh Thermal Power Station (Agenda by RVPN)

A.11.1 RVPN vide letter dated 21.12.2023 has proposed a SPS for 2X315 MVA, 400/220kV ICTs at Suratgarh Thermal Power Station (details of the SPS is attached as **Annexure-A.VI**)

Members may kindly deliberate.

A.12. Tapping Tertiary of 765/400/33 kV ICT-2 (by connecting the same at the point of connection of the UPPCL supply) for Reliable Auxiliary Power Supply to ±500kV HVDC Ballia SubStation. (Agenda by Powergrid NR-3)

A.12.1 Powergrid NR-3 vide mail have communicated that due to presence of ±500 kV 2500 MW Ballia-Bhiwadi HVDC Bipole system, the auxiliary power requirement in the substation is in the range of 1200 to 1400 kVA.

A.12.2 Presently, two Auxiliary supplies have been provisioned at Ballia Substation for HVDC, 400kV and 765kV System. One is from Tertiary of 200MVA 400/132kV ICT, and another is UPPCL feeder at 33kV Levels.

A.12.3 Normally, both supplies are always on load condition to HVDC LVAC buses of Pole-1 and Pole-2 and Bus Coupler under open condition. This provision is standard for HVDC Auxiliary supply to prevent dead bus condition during changeover in case of any one supply fails.

A.12.4 There are issues with the auxiliary supply provision regarding UPPCL feeder. This

feeder is not reliable and sometimes fails 2-3 times in a day and outage duration is most of the cases is generally more than 12 Hrs. Due to frequent breakdowns of UPPCL supply, the Auxiliary Power supply changeover occurs multiple times which is undesirable in view of frequent MV/LT CB operation, Valve Cooling Pump changeovers & UPS bypass operation. Details of Tripping in 33kV UPPCL Feeder in last 5 months(18no) are as below:

TRIPPING OF LINE		Line taken into service	
DATE	TINE	DATE	TIME
01.05.2023	20:05	02.05.2023	10:44
07.05.2023	19:40	08.05.2023	12:09
20.05.2023	11:43	20.05.2023	17:59
06.06.2023	23:59	07.06.2023	09:32
10.06.2023	16:14	10.06.2023	17:45
19.06.2023	06:20	19.06.2023	09:37
15.07.2023	14:18	15.07.2023	14:43
07.08.2023	03:29	07.08.2023	15:58
09.08.2023	06:17	09.08.2023	10:10
13.08.2023	08:53	13.08.2023	10:30
17.08.2023	19:58	18.08.2023	13:19
22.08.2023	22:40	23.08.2023	11:58
30.08.2023	18:46	01.09.2023	16:42
03.09.2023	09:35	03.09.2023	16:25
08.09.2023	09:51	09.09.2023	16:15
09.09.2023	20:54	21.09.2023	10:33
26.09.2023	13:09	26.09.2023	15:32
16.10.2023	22:02	17.10.2023	10:39

A.12.5 Regarding auxiliary supply from tertiary of 400/132 KV 200 MVA ICT, it may be mentioned that there are 02 nos 132 KV transmission lines of UPPCL connected to UPPCL SubStation. There are frequent faults in these lines which are being fed by this ICT, Hence the reliability of this ICT is also not good. Detail of Through faults in 132kV UPPCL Lines in last 3 months attached at **Annexure-A.VII**. (Total 673 times relay detected through faults). Any outage of 400/132 KV ICT may lead severe issue regarding auxiliary supply requirement of this station.

A.12.6 Generally, to avoid this situation, HVDC stations have provision for auxiliary supply from tertiary of the two independent ICTs and dedicated feeders from generating plants. In case of Ballia, same is not available.

A.12.7 Now, the Tertiary supply from 765kV ICT is necessitated for reliable sources to HVDC and HVAC Auxiliary Power Supply as various tripping occurred in the past due to the UPPCL unreliability.

A.12.8 Same was also discussed in 213th OCC meeting and as per discussion in forum matter was taken up with UPPTCL (Letter dated 07.12.2023,01.12.2023,01.09.2023 for checking of protection setting relay are attached as **Annexure-A.VIII**) and the details of auxiliary power supply at all POWERGRID HVDC stations on pan India basis is attached.

A.12.9 In view of above facts, Powergrid have proposed that –

Tapping Tertiary of 765/400/33 kV ICT-2 (by connecting the same at the point of connection of the UPPCL supply) in addition to the UPPCL Supply & 200MVA 400/132kV ICT Tertiary for Reliable Auxiliary Power Supply to ±500kV HVDC Ballia Substation with approx. cost estimate of Rs 1.25 Cr may be considered under ADD-CAP.

Members may kindly deliberate.

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

B.1. NR Grid Highlights for December 2023

Detailed presentation on grid highlights of Dec'2023 will be shared by NRLDC in OCC meeting.

B.2. Grid Operation related issues

I. Suspected tripping of lines during fog

The issues related to challenge during winter months regarding tripping of EHV lines due to fog has been deliberated in last three OCC meetings. OCC forum asked utilities to furnish the utility-wise latest status of washing of insulators & replacement of porcelain insulators with polymer insulators in 212 & 213 OCC meeting.

In the 214 OCC meeting, following was discussed:

- Special actions required by RVPN, UPPTCL and PSTCL.
- RVPN needs to proactively take actions for avoiding tripping of lines from RAPS as nuclear generation evacuation is effected.
- RVPN representative stated that 220kV Raps-Sakatpura lines & 220kV Raps-Debari have been taken under shutdown and necessary maintenance has been done by RVPN team.
- To accord priority to insulator washing & cleaning of the lines highlighted by NRLDC at the earliest, if not already done.
- For the lines in the list for which polymer replacement is pending, the replacement of the insulators may be expedited.
- In the lines for which insulator washing & cleaning has been done, it was also requested to mention the portion/length of line for which such exercise has been completed, including any vulnerable pockets left, if any.

As per data available at NRLDC, each of following lines have tripped on multiple occasions from 24.12.2023 to 02.01.2024 during night/ early morning hours:

400 KV Amritsar(PG)-Makhu(PS) (PSTCL) Ckt-2	PSTCL
400 KV Muktsar-Makhu (PS) Ckt-2	
400 KV Talwandi Saboo(PSG)-Muktsar(PS) (PS) Ckt-1	
400 KV Roorkee(PG)-Muzaffarnagar(UP) (PTCUL) Ckt-1	PTCUL
400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-1	RRVPNL
400 KV Anta-Chhabra SCTPS (RS) Ckt-1	
400 KV Chhabra-Chhabra SCTPS (RS) Ckt-1	
400 KV Aligarh-Muradnagar_1 (UP) Ckt-1	UPPTCL
400 KV Banda-Orai (UP) Ckt-1	
400 KV Harduaganj -Sikandrabad (UP) Ckt-1	

It may be noted that from above, lines such as 400 KV Amritsar(PG)-Makhu(PS) (PSTCL) Ckt-2, 400 KV Muktsar-Makhu (PS) Ckt-2, 400 KV Talwandi Saboo(PSG)-Muktsar(PS) (PS) Ckt-1, 400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-1, 400

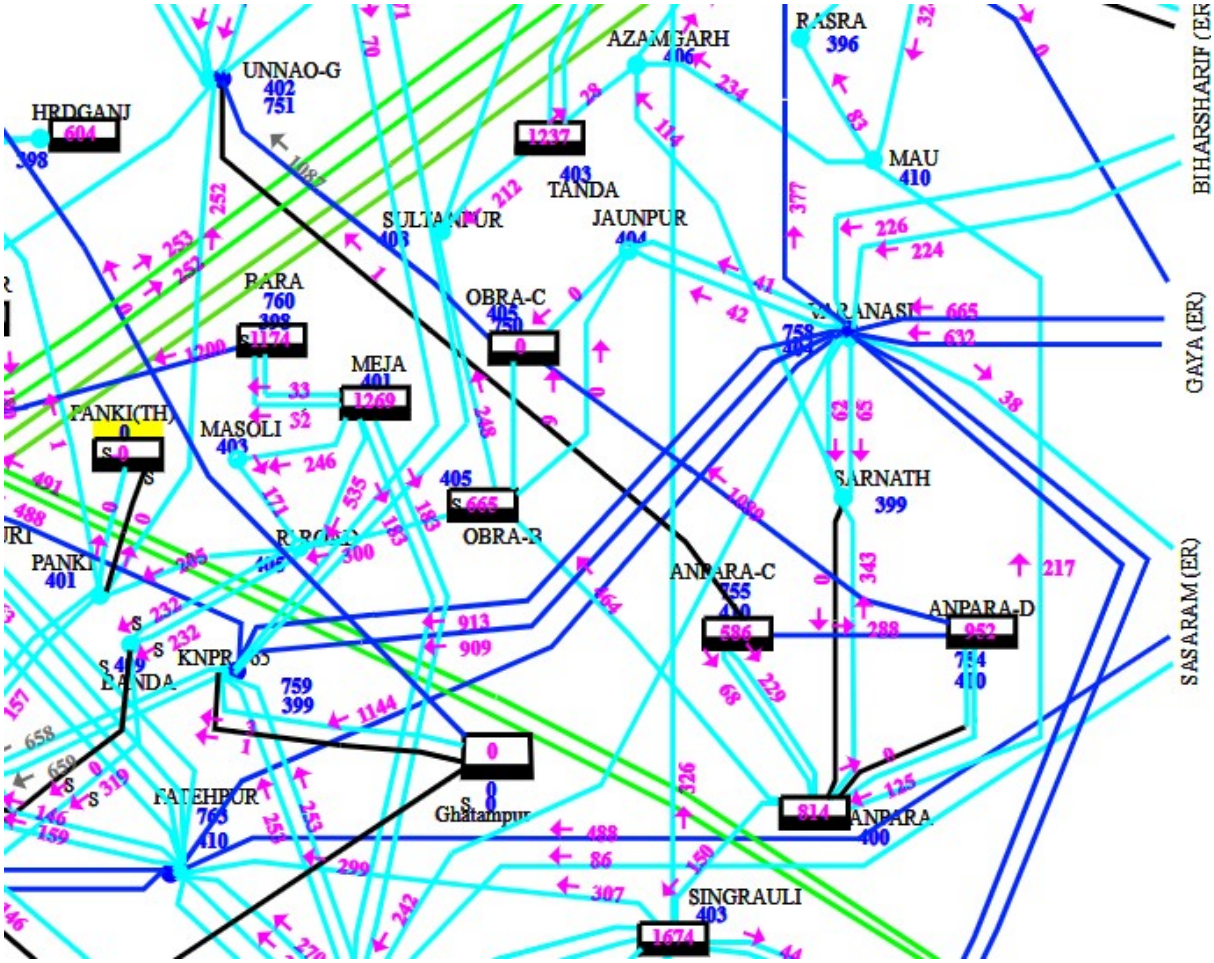
KV Aligarh-Muradnagar_1 (UP) Ckt-1 and 400 KV Banda-Orai (UP) Ckt-1 were also highlighted by NRLDC in last OCC meeting and special actions were requested for these lines.

It is once again requested to accord priority for washing and cleaning of insulators of these lines and other suitable measures for avoiding tripping of these lines due to fog.

Members may please discuss.

II. Prolonged outage of 765kV Anpara C-Unnao line:

Singrauli-Anpara complex in Eastern UP comprises of major pit head thermal generating stations which are generally scheduled for the available capacity even during winter months. Major evacuation of intrastate thermal generating stations is being done by 765kV AnparaC-Unnao and 765kV AnparaD-Unnao lines.



Shutdown of 765kV AnparaC-Unnao line was availed on 23-11-2023 for height raising of 765 kV Anpara C - Unnao line and A/R testing of protection relays at Unnao end.

It was expected that line would be revived before fog starts in Northern region, as during previous years number of fog related trippings were also observed. Although, this year fog related tripping have reduced, it is important that 765kV AnparaC-Unnao line is revived at the earliest, as incase of any line planned/ emergency shutdown in the complex, there is possibility of high loadings for the remaining lines. Moreover, the SPS implemented in the complex, utilizes antecedent loading of 765kV AnparaC-Unnao line for SPS logic, therefore unavailability of line leads to effective non-availability of SPS in

the complex. Letter from NRLDC side in this regard dated 29.12.2023 is attached as **Annexure-B.I.**

It is requested to complete shutdown-related works and expedite revival of 765kV AnparaC-Unnao.

III. Expediting commissioning of transmission system in line with upcoming intrastate generation in UP control area:

660MW generating units at both Jawaharpur TPS, Ghatampur TPS and Obra C TPS are under commissioning process and are expected to be in continuous operation from summer 2024. Presently, Jawaharpur TPS is operating and injecting infirm power to the grid. Similarly, Obra C Unit has also generated to its full capacity in December 2023. The planned transmission system for these generating units is delayed and it has been discussed to evacuate generation from these units through present available transmission system. It is to be noted that the generation evacuation is not N-1 secure and SPS have also been proposed in these generating complexes. Therefore, it is requested to expedite the planned transmission system for these generating stations as listed below:

Evacuation network of 2x660 MW Obra 'C' TPS (deliberated in 38th SCM dated 30.05.2016)

- 2x1000 MVA 765/400kV ICTs at Obra C
- LILO of Anpara "D" – Unnao 765 kV S/C line at Obra "C" – 40 km
- LILO of one ckt of 400kV DC Obra B-Obra C line at Jaunpur(400 kV)-190 km with Line Reactor of 63 MVAR for each ckt at Obra C end

Evacuation network of 2x660MW Jawaharpur Thermal Power Plant (deliberated in 38th SCM dated 30.05.2016)

- 765/400 kV, 2x1000 MVA ICTs at Jawaharpur TPS
- LILO of Mainpuri – Greater Noida 765 kV S/C line at Jawaharpur TPS - 30 km
- 400/220 kV 2x500 MVA ICT at Jawaharpur TPS
- Jawaharpur TPS–Firozabad 400 kV D/C (Quad) line – 80 km
- LILO of one circuit of Fatehabad (Agra 765 kV)- Agra South 400kV D/C line at Firozabad -20km

Evacuation system of Ghatampur (Kanpur) 3x660 MW TPS is as under:

- Ghatampur TPS –Agra (UP) 765kV S/C Line- 240 km (with Line reactors of 189 MVAR at both ends)
- Agra (UP) -Greater Noida (UP) 765kV S/C Line - 200 km (with Line reactor of 240 MVAR at Agra end)
- Ghatampur TPS - Hapur 765 kV S/C Line - 400 km with line reactors of 330MVAR at both ends.
- Ghatampur TPS – Kanpur (PG) 400 kV D/C line- 60 km
- 330 MVAR, 765 kV and 125 MVAR, 400 kV Bus Reactors at Ghatampur TPS switchyard

Of all these transmission elements, for Jawaharpur TPS and Obra TPS, it is seen that 2x1000 MVA 765/400kV ICTs are yet to be commissioned at Jawaharpur TPS as well as Obra C. It is important that commissioning of these generating units, transmission elements and the associated network of Ghatampur TPS is

commissioned at the earliest. This is important from the resource adequacy point of view for summer 2024 for UP state as well as NR region.

Members may please discuss.

IV. Low voltage related issues in J&K control area:

J&K grid being weakly connected from the rest of the grid and due to its isolated location suffers from issues of severe low voltage. During winter months when hydro generation is not available and demand in J&K control area is high due to heating load requirements, the issue of low voltage gets aggravated. J&K also has to pay large amounts as reactive energy charges to pool due to high MVAr drawl from ISTS grid at the time of low voltage.

It has been discussed and suggested to J&K to plan & expedite commissioning of reactive power devices especially capacitors at lower voltage level to improve the voltage profile in valley area and also avoid large sums payable as reactive energy charges.

Low voltage related issues of J&K and Ladakh (UT) has been regularly shared by NRLDC with CEA and CTUIL in Grid-India's quarterly operational feedback report. The issue has been continuously raised in NRPC as well as OCC meetings still the issues of low voltage persist in J&K especially Kashmir valley.

As can be seen from recent trends, 400kV voltages are reaching 370kV at Amargarh, Wagoora and Wanpoh substations. Even the SVC at New Wanpoh is being fully utilized and no margin is available for dynamic support. Plots of 400kV and 220kV bus voltages of Amargarh, Wagoora and Wanpoh substations for last 30 days are shown below:

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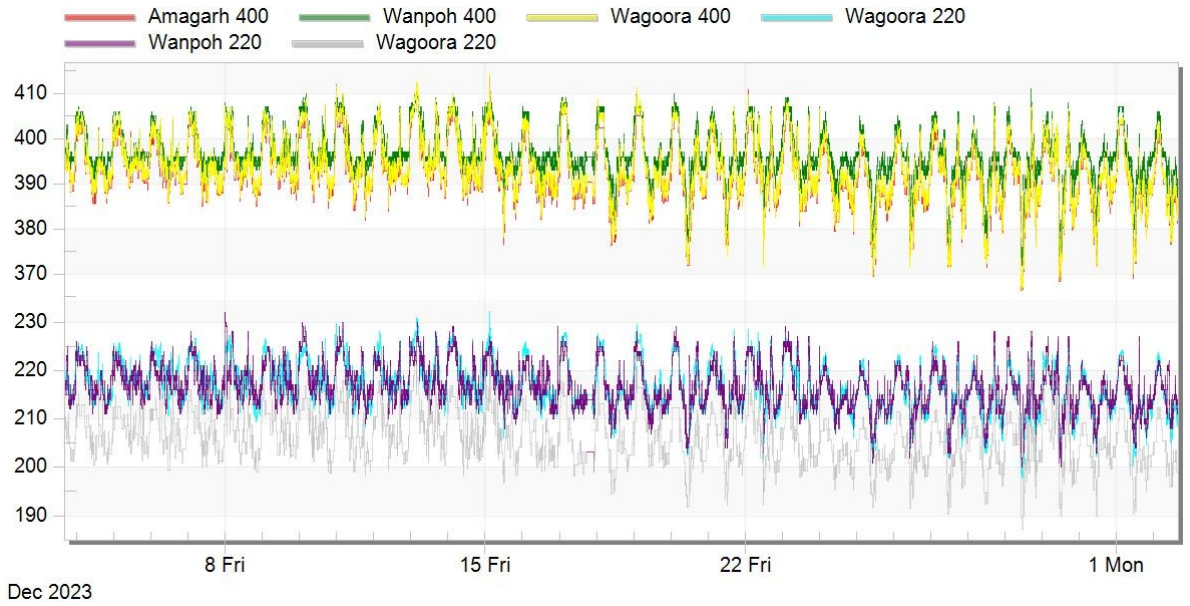
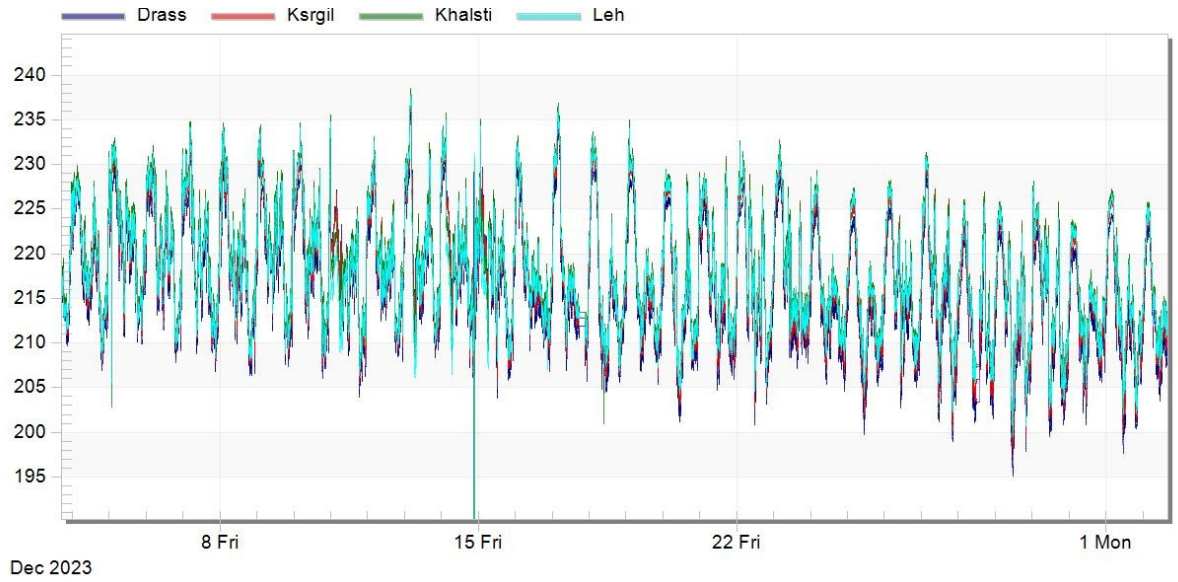


Further, low voltages are also being observed in Ladakh area also during winter months:



In special meeting taken by NRPC with J&K, following was discussed w.r.t. low voltags J&K control area:

NRLDC representative requested that following may be shared by J&K:

- List of nodes & node wise capacitor bank requirement (as finalised by JPDCL, KPDCL & JKPTCL)
- Tentative timeline for tendering and commissioning of capacitor banks
- List of nodes in J&K and Ladakh facing low voltage issues along with the voltage profile
- Status of 350MVAr capacitor bank at 11 kV under progress.

JPDCL representative informed that at present 392MVAr capacitor is functional. Further, 720 MVAr capacitors are also under proposal/implementation as per RDSS (Revamped Distribution Sector Scheme) scheme.

JKPTCL representative informed that at present 323MVAR is commissioned in transmission level out of which 240MVAR is functional. The faulty capacitors would be readied by end of this year. Further, new capacitors have been proposed under capital expenditure.

MS NRPC expressed concern on the issue highlighted by NRLDC and asked J&K to expedite their actions. It was also informed that if required, PSDF proposal may also be submitted by J&K.

JKPTCL, JPDCL and J&K SLDC are requested to provide update.

V. Delay in return of shutdown of 400kV Uri1-Amargarh & Expediting revival of 400kV Jodhpur-Kankroli:

Shutdown of 400 KV URI_1(NH)-AMARGARH(NRSS XXIX) (NRSS XXIX) ckt 1 was availed by POWERGRID for Replacement of 400KV Oil filled cable with XLPE type Cable on 27.09.2023. At the time of shutdown it was expected that the works would be completed and line would be available before December when load of J&K picks up and there is severe low voltage issues in the valley area.

However, the line is yet to be revived and the voltages in the valley area continue to be on the lower side.

Similarly, S/D of 400kV Jodhpur (RVPNL)-Kankroli (PGCIL) (PGCIL) was approved from 1st Oct'23 for re-conductoring work of entire 188km for 4 months. Due to outage of 400kV Akal-Kankani, 400kV Jaiselmer-Kankani lines, there was delay in providing shutdown of 400kV Jodhpur-Kankroli line.

400kV Jodhpur-Kankroli is an important line for evacuation of wind generation from intrastate network of RVPN. With the commissioning of 400kV Fatehgarh II – FatehgarhIII – Jaisalmer link, the flow on intrastate network has also increased. To avoid any possibility of intrastate/ interstate RE generation curtailment due to other shutdowns in the complex, it is requested to expedite revival of 400kV Jodhpur-Kankroli line.

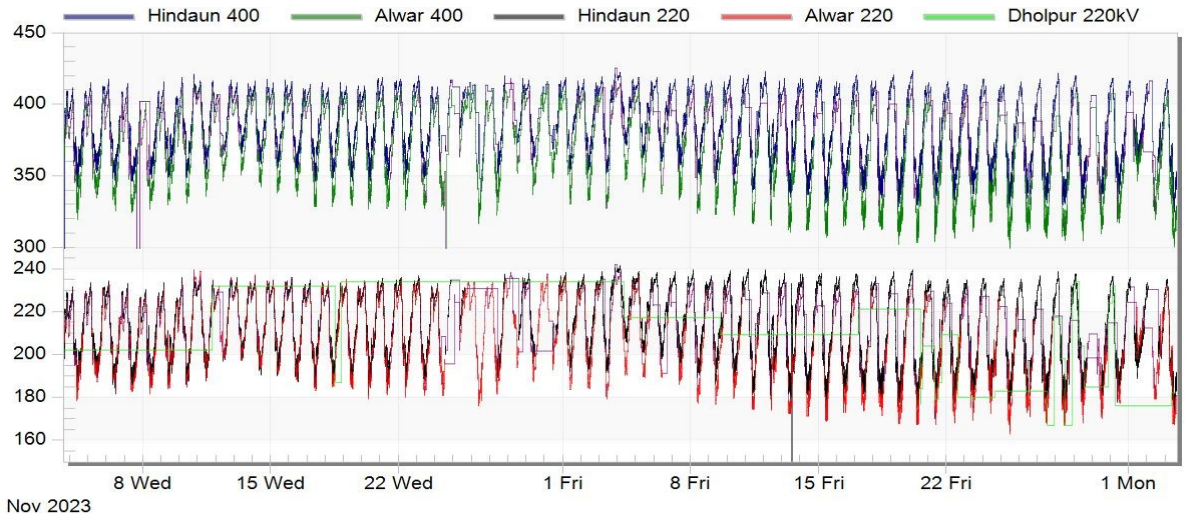
It is requested to expedite the revival of these lines.

VI. Critically low voltage at 400/220kV Hindaun & Alwar substations:

Serious concerns have been raised by NRLDC on the transmission related issues being observed in RVPN control area in various forums including NRPC and OCC forum. Sustained low voltage operations in several Rajasthan system pockets, like voltage dropping to 340 & 330 kV level at the 400kV Hindaun & Alwar substations respectively, are leading to risky & vulnerable grid operation, apart from the more serious concerns in the down-stream distribution sector.

It is to be noted that the issues is being highlighted by NRLDC since 2019-20, still the issue is pending and requires quick action from RVPN side as the situation is degrading with every passing day.

In 70 NRPC meeting held in Nov 2023, RVPN representative agreed to run Dholpur generating units for improving voltage profile in the area. However, the same is not being done and as a result drastically low voltages are being observed in these area during the day time as shown below:

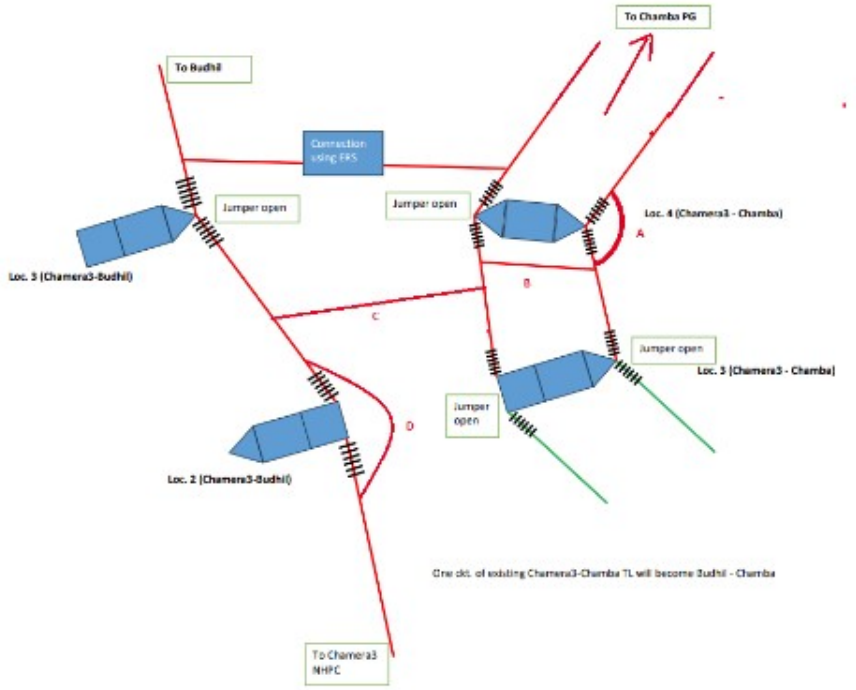


It is requested to expedite actions for improving the voltage profile at 400/220kV Hindaun & Alwar and nearby area. RVPN to provide update.

VII. Revival of 220kV Chamera3-Chamba to normal configuration

220 KV Chamera_3(NH)-Chamba(PG) (PG) Ckt-1 and ckt-2 were out due to tower collapse on 09-07-2023. Tower collapse was reported at Loc no. 1 from Chamera-3 end

and subsequently an interim arrangement was worked out in separate meeting between NRPC, PGCIL(NR2), Chamera3(NHPC), Budhil(Grenko), HPPTCL and NRLDC.



New circuits after installation of the alternative mechanism are in service as:

a) 220 kV Budhil-Chamba transmission line
b) 220 kV Chamera III-Chamba line

As the interim arrangement was done to facilitate safe evacuation of hydropower during the peak hydro season, it is requested that the works on collapsed tower may be expedited and the line may be restored to its normal configuration.

Members may please discuss.

VIII. Long outage of transmission elements:

Following important grid lines are out since long time:

S.No	Element Name	Owner	Outage Date
1	220 KV Charkhi Dadri(BB)-Mahindergarh(HV) Ckt-1	BBMB,HVPNL	13-03-2023
2	220 KV Charor(HP)-Parbati Pooling Banala(PG) Ckt-1	HPPTCL	06-06-2023
3	220 KV Samaypur(BB)-Palli(HV) (HVPNL) Ckt-2	HVPNL	12-01-2023
4	220 KV Kishenganga(NH)-Delina(PDD) (PG) Ckt-1	POWERGRID	09-06-2023
5	220 KV Kanpur(PG)-KanpurNaubasta(UP) (PG) Ckt-1		20-12-2023
6	220 KV Tanakpur(NH)-Sitarganj(PG) (PG) Ckt-1		23-05-2023
7	220 KV Agra(PG)-Sikandra(UP) (PG) Ckt-1		17-05-2023

8	220 KV Roorkee(PG)-Roorkee(UK) (PTCUL) Ckt-1	PTCUL	08-09-2023
9	220 KV Kota(PG)-KTPS(RVUN) (RS) Ckt-1	RRVPNL	09-09-2023
10	220 KV Kota(PG)-KTPS(RVUN) (RS) Ckt-2		09-09-2023
11	220 KV Badarpur(NT)-Alwar MIA(RS) (RS) Ckt-1		14-06-2023
12	132 KV Sheopur(MP)-Khandar(RS) (MPSEB) Ckt-1		05-08-2022
13	220 KV Gazipur(DTL)-Noida Sec62(UP) (UP) Ckt-1	UPPTCL	30-04-2022
14	220 KV Gazipur(DTL)-Shahibabad(UP) (UP) Ckt-2		30-04-2022
15	400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-2		09-03-2023
16	220 KV Agra(PG)-Tundla (UP) (UP) Ckt-1		03-05-2023
17	220 KV Khara(UP)-Saharanpur(PG) (UP) Ckt-1		28-08-2023
18	132 KV Chandoli(UP)-Karamnasa(BS) (UP) Ckt-1		09-09-2023
19	220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-2		26-12-2023

Similarly, some important ICTs under UPPTCL are under long outage since long time:

400/220 kV 315 MVA ICT 1 at Sarnath(UP)
400/220 kV 500 MVA ICT 2 at Noida Sec 148(UP)
400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)
400/220 kV 240 MVA ICT 2 at Orai(UP)
400/220 kV 315 MVA ICT 2 at Gonda(UP)
400/220 kV 240 MVA ICT 1 at Muradnagar_2(UP)
400/220 kV 500 MVA ICT 1 at Rasra (UP)
400/220 kV 240 MVA ICT 3 at Gorakhpur(UP)

Further, some important 400kV buses such as 400kV Bus 2 at Parbati_3(NHPC), 400KV Bus 1 at Vishnuprayag(JPVL) and buses such as 400kV Bus 2 at Aligarh(UP) and 400KV Bus 2 at Noida Sec 148(UP) are also under long outage.

It is requested to expedite restoration of the above-mentioned Grid elements at the earliest and also provide an update regarding their expected restoration date/time.

Member may like to discuss.

B.3. Sharing of ATC/TTC assessment and basecase with NRLDC

All NR states Chandigarh U/Ts are sharing basecase and ATC/TTC assessment with NRLDC. OCC has advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement.

CERC vide their order dated 29.09.2023 has granted approval of "'Detailed Procedure for Allocation of Transmission Corridor for Scheduling of General Network Access and Temporary General Network Access under Central Electricity Regulatory Commission

(Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022".

Detailed roles and responsibilities for State Load Dispatch Centers in various timelines of the approved procedure are provided in the table below.

Purpose	***Sl No***	***Action of Stakeholder***	***Responsibility***	***Submission to***	***Data/ Information Submission Time line***
1. Revision 0 TTC/ATC Declaration for Month 'M'	*1(a)*	*Submission of node wise Load and generation data along with envisaged scenarios for assessment of transfer capability*	*SLDC*	*RLDC*	*10th Day of 'M-12' month*
		Assessment of TTC/ATC of the import/export capability of the state and intra-state system and sharing of updated network simulation models			
	1(b)	*Declaration of TTC/ATC of the intra- state system by SLDC in consultation with RLDC*			*26th Day of 'M-12' month*
2. Interconnection Studies for elements to be integrated in the month 'M'	*2(a)*	*Submission of node-wise load and generation data & sharing of network simulation models for intra-state elements coming in the next six months*	*SLDC*	*RLDC*	*8th Day of 'M- 6' month*
	2(b)	*Sharing of inter-connection study results*			*21st Day of 'M-6' month*
3. Month Ahead TTC/ATC Declaration & Base case for Operational Studies for Month 'M'	*3(a)*	*Submission of node wise Load and generation data along with envisaged scenarios for assessment of transfer capability*	*SLDC*	*RLDC*	*8th Day of 'M- 1' month*
		Assessment of TTC/ATC of the intra- state system and sharing of updated network simulation models			
	3(b)	*Declaration of TTC/ATC of the intra- state system in consultation with RLDC*	*SLDC*	*RLDC*	*22nd Day of 'M-1' month*

B.3.1 ATC/TTC assessment sharing 11 months in advance

The procedure mentions that:

“SLDCs in consultation with RLDCs shall declare the import and export TTC, ATC, and TRM of the individual control/bid areas within the region in accordance with Regulation 44 (3) of the Grid Code 2023. RLDCs shall assess the import and export TTC, TRM and ATC for the group of control/bid areas within the region (if required). The computed TTC, TRM and ATC figures shall be published on the website of respective SLDCs and RLDCs, along with the details of the basis of calculations, including assumptions, if any, **at least eleven (11) months in advance**. The specific constraints indicated in the system study shall also be published on the website.”

Accordingly, SLDCs are requested to send the PSSE cases for four scenarios for January'25 i.e. Morning Peak, Solar Peak, Evening Peak & Off-Peak hours as given below

S. No.	Scenario	Time of Scenario
1	Off-Peak	03:00 Hrs
2	Morning Peak	10:30 Hrs
3	Evening Peak	18:45 Hrs
4	Solar Peak	12:00 Hrs

It is requested that the basecases as well as ATC/TTC assessments may be shared with NRLDC as per CERC approved procedure. Further, above exercise needs to be carried out regularly on monthly basis.

Basecase & ATC/TTC assessment was received from only Haryana SLDC for M-11 scenarios.

In 214 OCC meeting, all states were requested to share basecase as well as ATC/TTC assessments for M-11 scenarios on monthly basis with NRLDC as per CERC approved procedure. Accordingly, it is requested to submit the basecase as well as ATC/TTC assessments.

Members may please discuss.

B.3.2 Sharing of Data and study results for interconnection studies

As per **Regulation 33 of IEGC 2023,**

(9) Each SLDC shall undertake a study on the impact of new elements to be commissioned in the intra-state system in the next six (6) months on the TTC and ATC for the State and share the results of the studies with RLDC.
(10) Each RLDC shall undertake a study on the impact of new elements to be commissioned in the next six (6) months in (a) the ISTS of the region and (b) the intra-state system on the inter-state system and share the results of the studies with NLDC.
(11) NLDC shall undertake study on the impact of new elements to be commissioned in the next six (6) months in (a) inter-regional system, (b) cross-border link and (c) intra-regional system on the inter-regional system.

In line with above, utilities are requested to share the list of **elements/LGB data/interconnection study results** etc as per the approved procedure which are

expected to be commissioned up to **July 2024, before 4.1.2023. Above was also requested vide mails dated 26.12.2023 by NRLDC. This needs to be practised as monthly exercise on regular basis.**

Data regarding M-6 scenarios are pending from the utilities.

In 214 OCC meeting, all states were requested to share list of elements/LGB data/interconnection study results etc as per the approved procedure on monthly basis.

For NRLDC mail dated 26.12.2023, data has been received from POWERGRID NR-2 as of now.

B.3.3 ATC/TTC of states for winter 2023-24 (M-1)

Latest ATC/TTC figures as available with NRLDC for the month of February 2024 is attached as **Annexure-B.II**. States are requested to go through these figures and provide any comments.

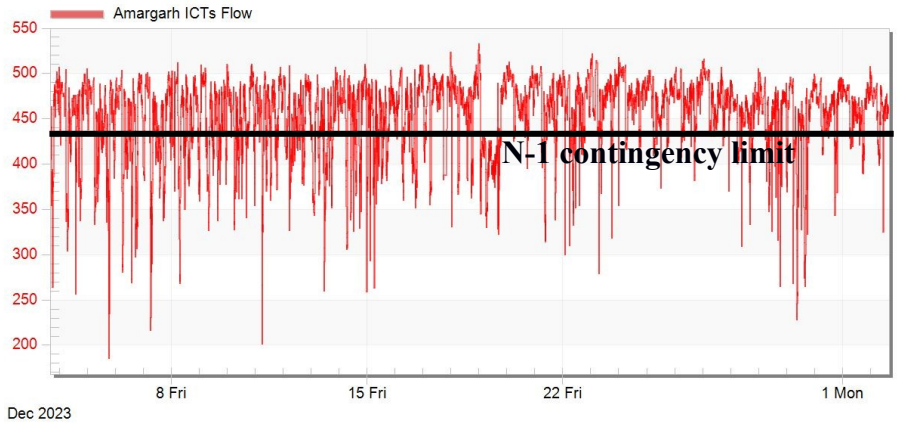
ATC/TTC assessment for winter 2023-24 has only been received from Rajasthan, HP, Haryana, J&K and Uttarakhand as of now.

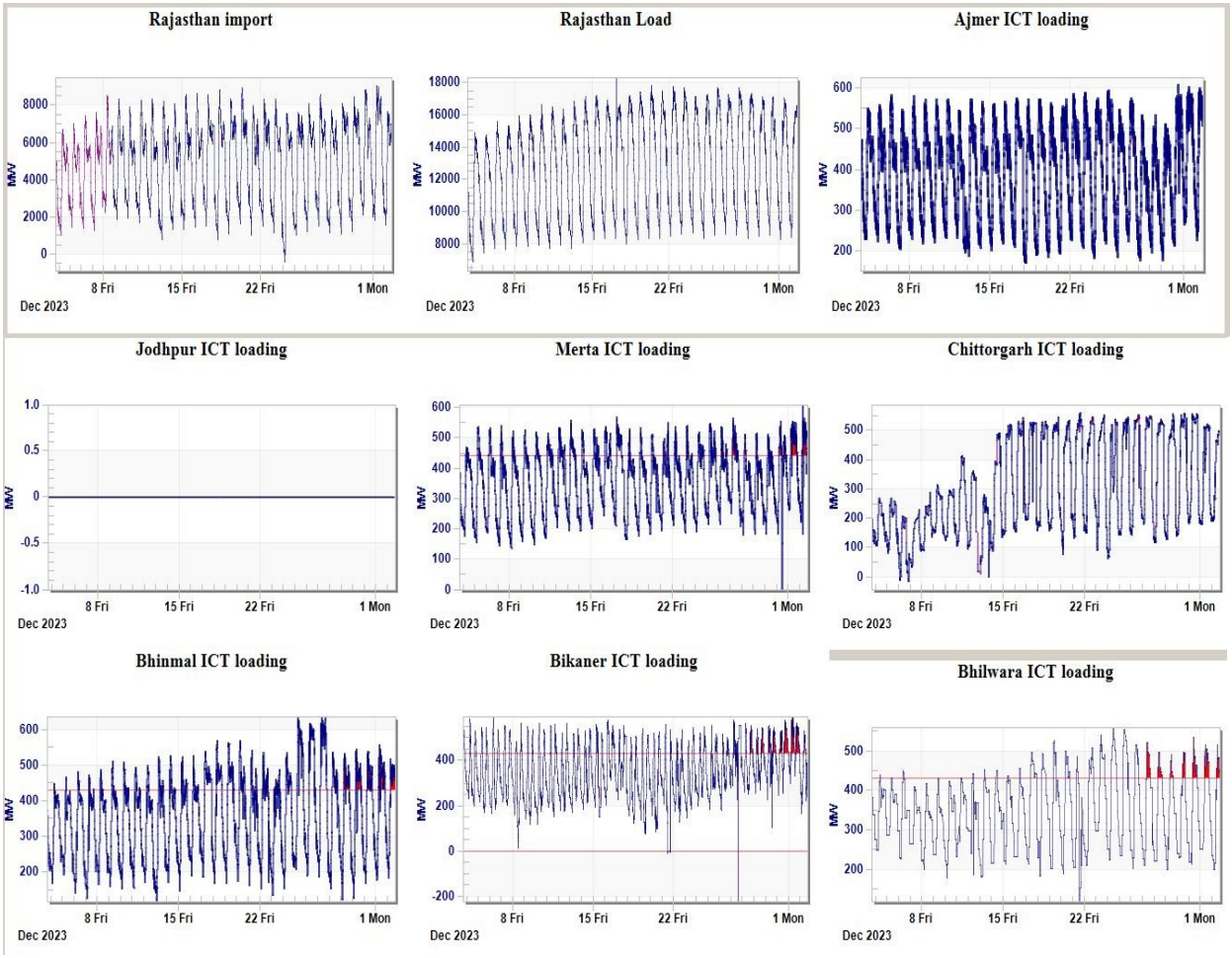
NRLDC has submitted their response to ATC/TTC limits assessed by Rajasthan SLDC whereas for other states such as HP, Haryana, J&K and Uttarakhand the ATC/TTC limits have been finalised.

Punjab, UP & Delhi are requested to share their ATC/TTC limits for winter 2024 at the earliest.

B.3.4 Constraints observed during last month

It is being observed that loading of 400/220kV ICTs at number of RVPN substations continue to be on the higher side. Some of the such stations are shown below along with loading of 400/220kV ICTs for last 30 days:





As discussed in 214 OCC meeting, it is requested that,

- Delhi, Punjab & UP SLDCs assess and share ATC/TTC assessment for Winter 2023-24 at the earliest.
- All states to share data and base case for M-6 & M-11 timelines as discussed in the agenda.
- SLDCs to take actions to ensure that loading of ICTs and lines under their jurisdiction are below their N-1 contingency limits.
- Maximize internal generation in case of drawl near to the transfer capability limits.
- Study sub-committee of NRPC would be meeting online next month to discuss on the challenges faced by SLDCs in submission of data, studies and basecases as per M-6/M-11 timelines.
- Forum agreed that in case no assessments for eleven months in advance are shared by SLDC, the existing ATC/TTC assessment could be published on website and considered for the said month.

Members may please discuss.

B.4. Reactive power performance of generators

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

poor/ inaccurate from most of the generating stations. For some of the generators it is seen that there is inadequate reactive power absorption based on their capability curve especially during night hours. The performance of generators in absorption of reactive power for last 30 days (10 Nov 2023 – 10 Dec 2023) is shown below:

S.No.	Station	Unit No.	Capacity	Geographical location	MVAR capacity as per capability curve (on LV side)	MVAR performance (-) Absorption (+) Generation (HV side data)	Voltage absorption above (in KV)
1	Dadri NTPC	1	490	Delhi-NCR	-147 to 294	-170 to 70	405
		2	490		-147 to 294	-170 to 80	405
2	Singrauli NTPC	1	200	UP	-60 to 120	-20 to 10	402
		2	200		-60 to 120	-20 to 10	402
		3	200		-60 to 120	-	-
		4	200		-60 to 120	-15 to 10	403
		5	200		-60 to 120	-25 to 5	402
		6	500		-150 to 300	-70 to 0	400
		7	500		-150 to 300	-70 to 10	402
3	Rihand NTPC	1	500	UP	-150 to 300	-100 to 0	398
		2	500		-150 to 300	-120 to 20	400
		3	500		-150 to 300	-90 to 10	400
		4	500		-150 to 300	-100 to 0	400
4	Kalisindh RS	1	600	Rajasthan	-180 to 360	-130 to 130	-
		2	600		-180 to 360	-90 to 50	-
5	Anpara C UP	1	600	UP	-180 to 360	-	-
		2	600		-180 to 360	-80 to 100	770
6	Talwandi Saboo PB	1	660	Punjab	-198 to 396	-160 to 50	412
		2	660		-198 to 396	-220 to 30	412
		3	660		-198 to 396	-	-
7	Kawai RS	1	660	Rajasthan	-198 to 396	-80 to 80	404
		2	660		-198 to 396	-80 to 80	404

8	IGSTPP Jhajjar	1	500	Haryana	-150 to 300	-100 to 100	412
		2	500		-150 to 300	-110 to 60	415, 405
		3	500		-150 to 300	-	-
9	Rajpura (NPL)	1	700	Punjab	-210 to 420	-200 to 60	406
		2	700		-210 to 420	-200 to 50	406
10	MGTPS	1	660	Haryana	-198 to 396	-150 to 50	408
		2	660		-198 to 396	-150 to 120	412
11	Bawana	1	216	Delhi-NCR	-65 to 130	-70 to 40	412
		2	216		-65 to 130	-60 to 30	410
		3	216		-65 to 130	-	-
		4	216		-65 to 130	-50 to 40	410
		5	253		-65 to 130	-50 to 60	415
		6	253		-65 to 130	-40 to 40	412
12	Bara PPGCL	1	660	UP	-198 to 396	-50 to 80	770
		2	660		-198 to 396	-60 to 70	770
		3	660		-198 to 396	-80 to 70	770
13	Lalitpur TPS	1	660	UP	-198 to 396	-130 to 100	760
		2	660		-198 to 396	-70 to 80	765
		3	660		-198 to 396	-130 to 100	760
14	Anpara D UP	1	500	UP	-150 to 300	-	-
		2	500		-150 to 300	-170 to 30	760
15	Chhabra TPS	1	250	Rajasthan	-75 to 150	-40 to 20	406
		2	250		-75 to 150	-60 to 10	402
		3	250		-75 to 150	-50 to 20	404
		4	250		-75 to 150	-50 to 30	406
		5	660		-198 to 396	-70 to 120	410
		6	660		-198 to 396	-70 to 120	408

For some of the generating stations it is seen that even after the machines are on bar, there is high voltage at these stations such as IGSTPP Jhajjar (421kV), CCGT Bawana (425kV), Bara (782kV) and MGTPS Jhajjar (422kV). Although, in general performance has improved in December 2023 as compared to November 2023.

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

Since with IEGC 2023 implementation, reactive energy performance also has financial impact, it is desirable that all generating stations continue to support grid voltages by having reactive power performance as per their capability curve and grid requirement.

Some of the generating units such IGSTPP Jhajjar, MGTPS Jhajjar, Bawana and Bara need to explore possibility of further MVAR absorption. Generators may also set their Vsch (voltage set point) such that units are absorbing MVAR as per their capability and grid requirement.

Members may like to discuss.

B.5. Frequent forced outages of transmission elements in the month of December'23:

The following transmission elements were frequently under forced outages during the month of **December'23**:

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-2	3	PG/UP
2	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2	5	Rajasthan/RAPS
3	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1	5	Rajasthan/RAPS
4	220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1	8	Rajasthan/RAPS
5	220 KV Saharanpur(PG)-Shamli(UP) (UP) Ckt-1	3	PG/UP
6	400 KV Aligarh-Muradnagar_1 (UP) Ckt-1	3	UP
7	400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-1	4	Rajasthan

The complete details are attached at **Annexure-B.III**.

It may be noted that frequent outages of such elements affect the reliability and security of the grid. Hence, utilities are requested to analyze the root cause of the tripping and share the remedial measures taken/being taken in this respect.

Members may like to discuss.

B.6. Multiple elements tripping events in Northern region in the month of December '23:

A total of 08 grid events occurred in the month of Dec'23 of which **04** are of GD-1 category and **04** are of GI-2 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.IV.**

Maximum delayed clearance of fault observed in event of multiple elements tripping at 400/220kV Ramgarh(RS) on 31st December, 2023 (As per PMU at Jodhpur(RS), Y-B phase to phase fault is observed with delayed fault clearance time of 520ms.

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **02** events out of **08** grid events occurred in the month.

Remedial actions taken by constituents to avoid such multiple elements tripping may be shared.

As per IEGC clause 37.2 (c), Disturbance Recorder (DR), station Event Logger (EL), Data Acquisition System (DAS) shall be submitted within 24 hrs of the event and as per IEGC clause 37.2 (e), the user shall submit a detailed report in the case of grid disturbance or grid incidence within one (1) week of the occurrence of event to RLDC and RPC.

However, DR/EL of the following grid events not received for events occurred at Avada(ASEPL) RE plant on 03rd Dec'23, Merta & Kankani(Rajasthan) and Ramgarh(Rajasthan) on 31st Dec'23 Detailed report not received for any of the Grid event occurred in Dec'23.

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

Members may like to discuss.

B.7. Grid event in RE complex in Rajasthan on 17th December, 2023:

On 17.12.23 at 13:01:03hrs & at 13:14:25hrs, 400kV Bhadla-Bikaner (Rajasthan) ckt-1 & 2 respectively tripped on L-L fault. During fault, RE generation dip of ~1600MW observed, out of ~1600MW, approx. 1300MW RE generation recovered within 02-03 minutes. Due to significant dip in RE generation frequency dropped by 0.15Hz (from 50.09Hz to 49.94Hz). Some of the RE plants were found Non-compliant w.r.t CEA clause B2(3) and B2(7) (LVRT & HVRT requirement at Interconnection point). Details of the LVRT & HVRT response during the event is attached as **Annexure-B.V**.

In view of above, RE plants are requested to share the root cause analysis (RCA report) of LVRT/HVRT Non-compliance at POI of their respective plants along with DR/EL & inverter logs data showing clearly the cause of generation loss/inverters tripping. A standard format was circulated earlier by NRLDC/CEA to report any such events, kindly furnished the details as per the information asked in the format (enclosed as **Annexure-B.VI**).

Members may like to discuss.

B.8. Details of tripping of Inter-Regional lines from Northern Region for December' 23:

A total of 08 inter-regional lines tripping occurred in the month of December'23. The list is attached at **Annexure-B.VII.** 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 37.2(c) 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.

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

Members may like to discuss.

B.9. Status of submission of DR/EL and tripping report of utilities for the month of December'23.

The status of receipt of DR/EL and tripping report of utilities for the month of December'2023 is attached at **Annexure-B.VIII**. It is to be noted that as per the IEGC provision under clause 37.2 (c), 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 improved however, reporting status from Delhi, Rajasthan, RAPP A, RAPP B & J&K need further improvement.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the trippings shall 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 37.2(c) and clause 15.3 of CEA grid standard. Apart from prints of DR outputs, the corresponding COMTRADE files may please also be submitted in tripping portal / through email.

Members may like to discuss.

B.10. Mock black start exercises in NR:

As per Indian Electricity Grid Code (IEGC) clause 34.3

" *Detailed procedures for restoration post partial and total blackout of each user system within a region shall be prepared by the concerned user in coordination with the concerned SLDC, RLDC or NLDC, as the case may be. The concerned user shall review the procedure every year and update the same. The user shall carry out a mock trial run of the procedure for different sub-systems including black-start of generating units along with grid forming capability of inverter based generating station and VSC based HVDC black-start support at least once a year under intimation to the concerned SLDC and RLDC. Diesel generator sets and other standalone auxiliary supply source to be used for black start shall be tested on a weekly basis and the user shall send the test reports to the concerned SLDC, RLDC and NLDC on a quarterly basis*".

Mock Black-start exercise of power stations therefore needs to be carried out in-order to ensure healthiness of black start facility.

The winter months are off peak hydro period and therefore good time to carry out such exercises. Therefore, the schedule of mock exercise dates for different hydro & Gas power station need to be finalized. The power stations may propose the tentative date for mock black start exercise of their generating units. Power stations may confirm and inform to all the concerned persons of control centre/ substations to facilitate the exercise.

Hydro Power Stations:

Name of stations	**Tentative Date for Mock Black start exercise (proposed by power plants)**
Uri-I, II HEP & Lower Jhelum HEP	Jan'24
Dhauliganga	Jan'24
Bairasiul	Feb'24
Sewa-2	Feb'24
N. Jhakri and Rampur	20th Dec'23
Karcham and Baspa	
Budhil	
Parbati-3 and Sainj	Mar'24
Salal	Mar'24
Chamera-3	
Kishenganga	Jan'24
Koteshwar	Jan'24
Chamera-1 and Chamera-2	Jan'24
Malana-2, AD Hydro and Phozal	29th Jan'24
Tehri	**Conducted successfully on 07th Nov'23**
Koldam	03rd week of Jan'24

Gas Power Stations:

Name of stations	**Tentative Date for Mock Black start exercise (proposed by power plants)**
Anta GPS	12th Feb'24
Auraiya GPS	11th Mar'24
Dadri GPS	**Conducted successfully on 16th Dec'23**

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.

Members are requested to share the tentative schedule of mock black start exercise of generating stations in their respective control area. 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.

Members may like to discuss.

B.11. Revision of document for Reactive Power Management of Northern Region:

NRLDC has been issuing 'Reactive Power document of Northern Region' on annual basis. Reactive Power Management document for Northern region has been revised and updated. The document has been published on 29th Dece'23 and same is available on NRLDC website on below link:

https://en.nrldc.in/download/nr_reactive-power-management_2024/?wpdmdl=13136

Document is password protected and password has already informed to all the NR constituents through letter dated 29th Dec 2023.

Members may kindly note.

B.12. Revision of System Restoration Procedure document of Northern Region:

NRLDC has been issuing 'System Restoration Procedure document of Northern Region' on annual basis. The document for Northern region was last revised on 31st Jan 2023 & updated document link is as below:

https://en.nrldc.in/download/nr-system-restoration-document/?wpdmdl=11999

Document is password protected and password was already informed to all the NR constituents through letter dated 31st Jan 2023.

In view of new addition/modification of transmission & generation element in NR grid since Jan'23, the document is being review for update.

Constituents are requested to provide the feedback, suggestion and updated information by 15th Jan 2024.

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 — Sep-2023
◎ HARYANA — Sep-2023
◎ HP — Oct-2023
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Sep-2023
◎ RAJASTHAN — Nov-2023
◎ UP — Nov-2023
◎ UTTARAKHAND — Nov-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 — Sep-2023
◎ HARYANA — Sep-2023
◎ HP — Oct-2023
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Sep-2023
◎ RAJASTHAN — Sep-2023
◎ UP — Sep-2023
◎ UTTARAKHAND — Sep-2023
◎ BBMB — Sep-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 — 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-2023</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Oct-2023</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Jul-2023</td></tr><tr><td>◎</td><td>UP</td><td>Oct-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>Sep-23</td></tr><tr><td>◎</td><td>HARYANA</td><td>Sep-23</td></tr><tr><td>◎</td><td>HP</td><td>Sep-23</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Sep-23</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Oct-23</td></tr><tr><td>◎</td><td>UP</td><td>Jul-23</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Sep-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>Scheme Implemented but operated in manual mode.</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 31.12.2023.</td></tr><tr><td>◎</td><td>UP</td><td>Scheme implemented by NPCIL only</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Scheme not implemented</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	500 MVAr TCR at Kurukshetra has been commissioned on dated 15th December 2023
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	1x50 MVAr Reactor at Peeragarhi has been commissioned on dated 18.09.2023
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	2x50 MVAR Reactor at Harsh Vihar has been commissioned on dated 31th March 2023.
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work completed on 07.11.2023. 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 - 1x125 MVAR Reactor at Dhuri has been commissioned on dated 30th March 2023. 220kV Reactors - 1x25 MVAR Reactor at Dhuri has been commissioned on dated 27th January 2023.
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	SLDC informed that PTCUL has intimated that tender has been scrapped. Retendering will
xi	RAJASTHAN	Akal	1x25 MVAr	1x25 MVAR Reactor at Akal has been commissioned on dated 25th July' 2022.

xii	RAJASTHAN	Bikaner	1x25 MVAr	1x25 MVAR Reactor at Bikaner has been commissioned on dated 24th June 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. Likely to be commissioned by 31.01.2024.
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. Likely to be commissioned by 31.01.2024.

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.	-	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to severe ROW problem at Location No. 1 near Grid Substation Jatwal where the Land owner is not allowing erection of Tower. The Deputy Commissioner Samba has been approached for intervention and facilitating the erection of Tower. He is persuading the Land owner to get the work completed. Updated in 210th 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 commissioned 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: 7	• 220 kV D/C Shahajahanpur (PG) - Gola line	Commissioned	Energization date: 26.10.2023 updated by UPPTCL in 215th OCC
				• 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	• 220 kV Hamirpur-Dehan D/c line	Commissioned	HPPTCL has commissioned the Planned 220kV Dehan-Hamirpur TL utilizing 2 No. 220kV Bays.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.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
				• 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 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: 2 Unutilized: 2 Under Implementation:2	• 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'24	Updated in 214th OCC by HPPTCL
				• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Giri S/s	-	HPPTCL to update the status.
				• 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: 4 Unutilized: 4	• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road	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 Aprroved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV 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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	31.12.2023	Updated in 205th OCC by HVPNL. **Status:** Work was held up due to ROW at T.L. No. 7,8,11,12 & 13 by the farmers of Jajji villagers during July'23 and now the matter has been resolve and work under progress from 01.08.2023. The erection work of T.no. 1 is pending due to non availability of shut down at 220KV Mohana-Smk line and 220KV Jajji-Mohana line. • PLCC protection coupler and Forest approval is also pending.
				• Sonepat - HSIISC Rai 220kV D/c line	Mar'24	Updated in 212th 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. Now, the matter is under approval from competent authority of Nigam.,
				• Sonepat - Kharkhoda Pocket A 220kV D/c line	31.07.2024	Updated in 212th OCC by HVPNL. **Status:** Work order has been issued to M/s R.S Infra on dated 09.08.2023 by O/o CE/PD&C, Panchkula for construction of line. The Survey work has been completed.
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 commissioned 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	Commissioned	• Lucknow -Kanduni, 220 kV D/C line work energized on 05.10.2023. Updated in 212th OCC by UPPTCL. _____ • 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	Commissioned	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line energized on 27.09.2023 updated by UPPTCL in 212th 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.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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	Dec'23	SCDA System & PLCC work pending at 220 KV S/stn. Rajokheri Updated in 209th 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	Dec'23	Updated in 211th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	Feb'24	Updated in 211th 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
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Under Implementation:2	• Amritsar – Patti 220kV S/c line	Jan'24	Work is near completion expected to be completed by January 2024. Updated in 214th OCC by PSTCL.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	Jan'24	Work is near completion expected tobe completed by January 2024. Updated in 214th 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 Approved: 4 Total: 8	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	Updated in 212th OCC by HVPNL. **Status:** Work order has been issued to M/s R.S Infra on dated 09.08.2023 by O/o CE/PD&C, Panchkula for construction of line. The Survey work has been completed.
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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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 2 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	Dec'23	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work completed only jumpering reamins to be done.Updated in 214th OCC by PSTCL.
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 ready for commissioning. Case for Initial Charging is in process at NRLDC..Updated in 214th 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 (18.07.2023)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (18.07.2023)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (09.07.2023)
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)

MIS Report for Status of Islanding Schemes

Implemented Schemes

Sl. No.	Islanding Scheme	SLDC	Status	Submission of Self Certification of Healitheness	SOP	SCADA Display Page	Remarks
1	NAPS IS	UP	Implemented	Yes (08-10-2021)	Yes	Yes	-
2	RAPS IS	Rajasthan	Implemented	16-Aug-21	Yes	Yes	List of officials in-charge, format for generation, islanding scheme sld and relays in RAPP IS submitted by RVPN on 04.12.2021.

Under Implementation/ Newly Proposed/Under Discussion

Sl. No.	Islanding Scheme	SLDC	Status	Details of progress	DPR for PSDF funding (Require	Timelines Status - Proposed/Actual									
						Study		Design		Approval		Procurement		Commissioning	
						Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual
1	Lucknow-Unchahar IS	UP	Under Implementation	Scheme has been approved in 59th NRPC meeting held on 31.10.2022. Installation of Ufrs is complete expect at NTPC Unchahar end .		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Under Study	Lalitpur TPS has has some observations on CPRI report and same is under examination.		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022.Preparation of DPR is under finalization. Timeline to be intimated by RVPN	-	-		-	-	-	-	-	-	-	-
4	Suratgarh IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Preparation of DPR is under finalization. Timeline to be intimated by RVPN	-	-		-	-	-	-	-	-	-	-
5	Patiala-Nabha Power Rajpura IS	Punjab	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Punjab SLDC informed that their management has decided to go for PSDF funding for its implementation Implementation timeline: March,2025		-		-	-	-	-	-	-	-	-
6	Pathankot-RSD IS	Punjab	Implemented	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Scheme has been implemented in April 2023 as informed by Punjab in 206th OCC. Testing Reports submitted by Punjab.		-		-	-	-	-	-	-	-	-
7	Kullu-Manali-Mandi IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Timeline to be intimated by HPSLDC		-		-	-	-	-	-	-	-	-
8	Shimla-Solan IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Timeline to be intimated by HPSLDC											
9	Delhi IS	Delhi	Implemented	Revised Delhi islanding scheme has been implemented as informed by DTL in 48th TCC and 70th NRPC meeting.											

Status of availability of ERS towers in NR

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
1	PTCUL	400kV	418.394	NIL	1		DPR Under preparation.
		220kV	1045.135	NIL	1		DPR Under preparation.
2	Powergrid NR-1	220 KV	1842.88	NIL	1		
		400 KV	11074.26	12 Towers	3	All 400kV ERS at Ballabhgarh	make-Lindsey
		765 KV	4721.85	15 Towers	1	All 765kV ERS at Meerut	Make-SBB
		500 KV HVDC	653.88	NIL	1		
		800 KV HVDC	416.58	NIL	1		
3	Powergrid NR-2	66 KV	37.56	Nil	1		ERS tower available for 400KV rating can be used in place of lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can be erected will reduce due to increase in Tower Hight.
		132 KV	262.7	Nil	1		
		220 KV	2152	Nil	1		
		400 KV	8097.3	02 Set (32 Towers)	2	Kishenpur & Jalandhar	
		765 KV	337.5	Nil	1		
4	Powergrid NR-3	800KV HVDC	2205	NIL	1		400KV ERS will be also be used in other voltage level lines
		500KV HVDC	2566	NIL	1		
		765KV	4396	NIL	1		
		400KV	12254	26 Towers	3	Kanpur	
		220KV	1541	NIL	1		
		132KV	207	NIL	1		
5	PARBATI KOLDAM TRANSMISSION COMPANY LIMITED	400kV	457	NIL	1		Procurement under process.
6	PATRAN TRANSMISSION COMPANY LTD	400kV	0.4	NIL	1	It is kept in Bhopal and on need basis is moved across region	Not available, will tie up based on the requirements in future. However the parent company IndiGrid owns one set of ERS for all five regions.
7	NRSS-XXIX TRANSMISSION LTD	400kV	853	NIL	1		
8	GURGAON PALWAL TRANSMISSION LTD	400kV	272	NIL	1		
9	RAPP Transmission Company Limited.	400kV	402	NIL	1		
10	NRSS XXXVI Transmission Limited	400kV	301.924	NIL	1		Element I - Operational comprising of 3 kms. Element II - Work Under Progress comprising of 221.924 kms. Element II - Work Under Progress comprising of 77 kms.
11	HPPTCL	220 kV	659	NIL	1		
		400 kV	75.7	NIL	1		
12	RVPN	132 kV	18969.958	1	4	01 No. ERS available at 220 kV GSS Heerapura, Jaipur	ERS proposed : 01 Set at 400 kV GSS, Jodhpur. 01 set at 400 kV GSS Bikaner
		220 kV	16227.979		3		
		400 kV	6899.386		2		
		765 kV	425.498		1		
13	DTL	220kV	915.498	NIL	1	400kV Bamnauli Sub station	ERS tower available for 400KV rating can also be used for lower voltage lines as well
		400kV	249.19	02 Sets (32 towers)	1		
14	JKPTCL						

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
15	HVPN						HVPN does not have ERS Set. Technical Specifications have been finalized
16	PSTCL						
17	UPPTCL 1- Meerut	132KV	27508.321	24 Nos(15 Running+9 Angle)		400 kV S/s Gr. Noida	ERS will be also be used in other voltage level lines.
		220KV	14973.453				
		400KV	6922.828				
	UPPTCL 2-Prayagraj	765KV	839.37	24 Towers		220 kv S/s phulpur	ERS will also be used in other voltage lines.
		400KV	1804.257				
		220KV	2578.932				
		132KV	4714.768				
18	POWERLINK						
19	POWERGRID HIMACHAL TRANSMISSION LTD						
20	Powergrid Ajmer Phagi Transmission Limited						
21	Powergrid Fatehgarh Transmission Limited						
22	POWERGRID KALA AMB TRANSMISSION LTD						
23	Powergrid Unchahar Transmission Ltd						
24	Powergrid Khetri Transmission Limited						
25	POWERGRID VARANASI TRANSMISSION SYSTEM LTD						
26	ADANI TRANSMISSION INDIA LIMITED		2090	1 Set (12 towers)	1 set (12 towers)	Sami (Gujarat)	Make-Lindsey ERS set available for 400KV & 500KV rating can be used for lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can reduce due to increase in Tower Height & nos of conductors.
27	BIKANER KHETRI TRANSMISSION LIMITED		482				
28	FATEHGARH BHADLA TRANSMISSION LIMITED	500 kV HVDC 400 kV HVAC	291				
29	NRSS-XXXI(B) TRANSMISSION LTD	765 kV HVAC					
30	ARAVALI POWER COMPANY PVT LTD	765 kv HVAC					

*The transmission Utility with line length less than 500 ckt kms (of 400 KV lines) may be given option either to procure ERS or have agreement with other transmission utilities for providing ERS on mutually agreed terms, when need arises.
(As per MoP directions)

सामान्य आउटेज योजना प्रक्रिया

Common Outage Planning Procedure

उत्तर क्षेत्रीय विदयुत समिति

Northern Regional Power Committee

जनवरी 2024

January 2024

Contents

1. Background

1.1. This procedure is in accordance with *clause 32 (4) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023*.

1.2. The procedure lays down the guidelines for proposal of grid element outages by indenting agency and facilitation of coordinated planned and emergency outages.

2. Introduction

Reliable operation of the All India grid is important from the view point of Quality Of Service (QoS) to the customers and other stakeholders. Proper coordination of transmission element outages in the system is one of the key aspects to ensuring reliability. Outages in the transmission network could either be on account of planned maintenance activities or construction related activities or any emergency conditions arising in the field. Proper coordination of transmission element outage is important mainly due to the following factors:

a) Reliability of operation of the All India grid
b) Certainty to the electricity markets.
c) Proper crew resource mobilization at the work sites to ensure that outage time is minimized.
d) Proper coordination of works by different entities to ensure that outage time is optimised.

Outage planning shall be prepared for the grid elements in a coordinated and optimal manner keeping in view the system operating conditions and grid security. The coordinated generation and transmission outage plan for the national and regional grid shall take into consideration all the available generation resources, demand estimates, transmission constraints, and factor in water for irrigation requirements, if any. To optimize the transmission outages of the national and regional grids, to avoid grid operation getting adversely affected and to maintain system security standards, the outage plan shall also take into account the generation outage schedule and the transmission outage schedule.

Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023. Operating Code: Regulation No. 32(4) stipulate that **"To** facilitate coordinated planned outages of grid elements, a common outage planning procedure shall be formulated by each RPC in consultation with the NLDC, concerned RLDC and concerned users.

Major time line for annual outage plan is as follows:

Table 1: Timeline for processing of shutdown plan

Activity	Agency	Cut-off date
Submission of proposed outage plan for the next financial year to RPC with the earliest start date and latest finishing date	STUs, transmission licensees, generating stations and other entities directly connected to ISTS	31st October
Submission of LGBR of the control area to RPC for both peak and off-peak scenarios	SLDC	31st October

Publishing draft LGBR and draft outage plan of regional grid for next financial year on the concerned RPC's website for inviting suggestions, comments, objections of stakeholders.	RPC	30th November
Publishing final LGBR and final outage plan of regional grid for next financial year on the concerned RPC's website	RPC	31st December

3. Objective

At present, following outage categories are being followed

I. ***Planned Outage Category:*** Planned outages are being discussed in Operation Coordination Committee (OCC) meeting of NRPC on monthly basis and availed based on the actual grid conditions.

II. ***Post OCC Category:*** Under exceptional cases such as construction activities or urgent nature of works, outage for maximum of two days shall be proposed by indenting agency after the OCC meeting under Post OCC category.

III. ***Emergency Category:*** For attending emergency nature of works, asset owner shall send the proposal directly to NRLDC control room and shutdown may be facilitated based on the actual grid conditions.

The approval of planned/Post OCC as well as emergency outages in the transmission network level in real time is being coordinated by NRLDC and NLDC based on system conditions. The procedure aims to streamline the process of outage coordination between SLDCs, NRLDC, NLDC, NRPC, owners of transmission assets and transmission element outage Indenting Agencies. As outage planning is an important part of operational planning, multi-layered checks would help in ensuring reliability of the power system. These checks need to be at the following levels:

- ✓ Due diligence between the agencies involved in the transmission asset maintenance through bilateral discussion.
- ✓ Operation Co-ordination sub-Committee of NRPC
- ✓ Off-line simulations and planning at SLDCs/RLDCs/NLDC level
- ✓ Real time check at SLDCs/RLDCs/NLDC level

4. Scope

The procedure is applicable to NRPC, NRLDC, NLDC, SLDCs, STUs, load serving entities and indenting agency. It would be applicable once the annual outage plan is finalized by 31st December of each year for the next financial year by the NRPC as per the IEGC.

5. Applicability

The procedure is applicable to important grid elements including bays published by NRLDC/NLDC. This procedure shall also be applicable to other grid elements for the proposed outage period more than 2 days.

6. Procedure for discussing outages in OCC meeting

6.1. ***Indenting Agency:*** The agency which gives the requisition for outage of any transmission element shall be called Indenting Agency. Any of the following may request for outage of any transmission elements:

6.1.1. Transmission Licensees / State Transmission Utilities
6.1.2. Generating Companies
6.1.3. NRLDC/NLDC for defence mechanism testing / blackstart mock drills

6.2. Indenting Agency shall submit the proposed shutdown for the next calendar month latest by 05th day of the current month to the NRPC Secretariat via Outage Management Software (OMS) Portal of NRLDC as per ***Format I.***

6.3. In case of shutdown of inter-regional lines and intra-regional lines affecting the transfer capability of any inter regional corridor, the Indenting agency shall submit the shutdown proposal in all the concerned RPCs latest by 05th day of the current month. To facilitate this broad list of such lines is indicated at ***Annexure-I*** which will be reviewed and updated by NLDC from time to time. The indenting agency may do an internal screening of its outage plan centrally to avoid multiple outages in the same corridor simultaneously. Bilateral discussion between the agencies involved may also be done to minimize outage duration before submitting the outage plan to RPCs.

6.4. NRPC Secretariat shall compile all the received proposals and put up the same on its website by 7th day of the month as per ***Format II.***

6.5. NRLDC/NLDC shall study the impact of these outages and furnish its comments/observations to NRPC Secretariat for discussion in the OCC meeting.

6.6. While approving the shutdowns it shall be ensured that outages in the same corridor shall not be approved simultaneously. It also needs to be ensured that all other concerned entities should also complete their work during the shutdown period so as multiple shutdowns of same element for work by multiple agencies are avoided. The multiple outages of the transmission element for the same work during the year may also be avoided.

6.7. Any transmission element approved by OCC may be allowed to be re-scheduled by NRLDC in the same month for which it was approved considering the grid scenario and genuineness of deferment by indenting agency. After getting approval from NRLDC, the indenting agency would reschedule the outage.

6.8. All the Members of Operation Coordination Sub-Committee of NRPC to ensure participation in OCC Meeting, otherwise it will be treated as deemed concurred.
The list of approved/rejected outages would be uploaded on the NRPC website within 3 working days of OCC meeting. as per ***Format III.***

6.9. Any shutdown proposal which requires approval of more than one RPCs shall be considered approved only if it is approved in all the RPCs.

6.10. All testing related to SPS /HVDC / Mock drill for black start operation (including toggling of SPS) shall be approved in all concerned RPC's and shall be requested as per outage planning procedure.

7. Procedure for proposing Post OCC Category outages

Under exceptional cases such as construction activities or urgent nature of works, outage shall be proposed by indenting agency to NRPC on D-5 basis. Indenting agency shall propose the outage to concerned RPCs in case of inter-regional (IR)/intra-regional transmission elements affecting IR TTC/ATC on D-5 basis. NRPCwould also consult respective SLDCs/NRLDC/NLDC before approval on D-4. Only after approval from NRPC, shutdown will be facilitated by NRLDC/NLDC based on the real time grid condition. Outage facilitation priority may be given to OCC approved outages. Indenting Agency shall submit the proposed shutdown as per ***Format I.***

8. Procedure for proposing Emergency Category outages

All outages which are not approved in the OCC meeting / Post OCC category, however having impact on human and equipment safety shall be considered under Emergency Outage category. Indenting Agency shall submit the proposed shutdown to NRLDC/NLDC as per **Format IV.**

9. Approving Load Despatch Centre and Consenting Load Despatch Centre

9.1. **Approving Load Despatch Centre:** The Load Despatch Centre responsible for approving any transmission outage shall be called Approving Load Despatch Centre.

9.2. **Consenting Load Despatch Centre:** The Load Despatch centre whose consent is required by Approving Load Despatch Centre for approving any outage shall be called Consenting Load Despatch Centre. Once the NRPC approve the monthly outage plan and Post OCC category outages, the responsibility of approval of outages shall be as under:

S No	Type of Outage	Consenting Load Despatch Centre	Approving Load Despatch Centre
1	765 kV or above Lines	Concerned RLDCs	NLDC
2	Inter-Regional Lines	Concerned RLDCs	NLDC

3	HVDCs	Concerned RLDCs	NLDC
4	International Interconnections	Concerned RLDCs	NLDC
5	Intra-Regional Lines affecting transfer capability of any inter regional corridor	Concerned RLDCs	NLDC
6	Intra-Regional Lines which does not affect transfer capability of any inter regional corridor and included in the list of important elements of RLDCs (excluding lines covered under S No.1,3,4 and 5)	SLDCs	NRLDC
7	All other lines (excluding S No. 1,2,3,4,5,6)	SLDCs	SLDC
8	Lines having impact on major generating station (having major shareholders in other regions) and chicken neck area	NLDC	NRLDC

10. Procedure for approval of outage on D-3 basis

Planned Outages which have been approved in the OCC meeting or under Post OCC category of a region shall be considered for approval by NRLDC/NLDC on D-3 basis. If an outage is to be availed on say 10th of the month, the indenting agency would punch the readiness in Web portal / forward such requests to the NRLDC from 10:00 hrs/06th to 10:00 hrs/07th of the month. In case the request for transmission element outage is not received within the timeline prescribed above, it will be assumed that the indenting agency is not availing the outage.

10.1. In case the owner is not availing the OCC or Post OCC approved outage, the same shall be punched in Web portal / intimated to the NRLDC from 10:00 hrs of D-4 to 10:00 hrs of D-3.

10.2. Planned Outages which are approved in OCC meeting or Post OCC outages shall only be considered for approval on D-3 basis and priority shall be given to OCC approved outages.

10.3. For all testing or operation related to automatic voltage regulators (AVRs), Power System Stabilizers (PSSs), Power Plant Controllers (PPC), RGMO, etc. indenting agency would send request to NRLDC through Web portal /google sheet / through mail from 10:00 hrs of D-4 to 10:00 hrs of D-3.

10.4. **Approval of Outage where Approving Authority is NLDC**

10.4.1. NRLDC shall forward the request for shutdown along with their consent and observations/contingency plan in web portal to NLDC by 10:00hours of D-2 day. Other concerned RLDCs would forward their observations/consent/reservations by 18:00 hours of D-2

10.4.2. NLDC shall approve the outage along with the clear precautions/measures to be taken during the shutdown and inform all concerned RLDCs.

10.4.3. The proposed outages shall be reviewed on day ahead basis depending upon the system conditions and the outages shall be approved/refused latest by 12:00 Hrs of D-1 day through web portal.

10.4.4. In case the outage is approved precautions/measures to be taken during the shutdown shall be stated. In case of refusal, reasons for the same shall be stated by the RLDCs/NLDC.

Sl No	**Activity**	**Day & Time**
1	Request of shutdown from Indenting agency to NRLDC.	10:00 hrs/D-4 to 10:00 hrs/D-3
2	Forwarding request of shutdown requiring NLDC approval from NRLDC to other concerned RLDCs and NLDC (along with the recommendations and study result)	10:00 hrs/D-3 to 10:00hrs/D-2
3	Comments of other RLDCs or NLDC	18:00hrs/D-2
4	Approval or Rejection of Request	12:00hrs/D-1

10.5. **Approval of Outage where Approving Authority is RLDC**

10.5.1. In case the indenting agency is a state entity, the request for transmission element outage shall be submitted to respective state load despatch centre (SLDC). SLDC shall forward the request for shutdown along with their consent and observations in web portal to NRLDC.

10.5.2. In all other cases, the request for transmission element outage shall be submitted to NRLDC.

10.5.3. NRLDC shall study the impact of proposed outages and approve / refuse the outage latest by 12:00 Hrs of D-1 day. A copy of the approval / refusal shall also be sent to NLDC (for 400 kV and above lines) through web portal/email.

10.5.4. In case the outage is approved precautions/measures to be taken during the shutdown shall be stated. In case of refusal, reasons for the same shall be stated by the SLDCs/NRLDC

10.5.5. Outages in the same corridor shall not be approved simultaneously and shall be rescheduled. Proposal to be updated in web portal by utility from 10:00 hrs/D-4 to 10:00 hrs/D-3 of rescheduled date within approved month only.

10.6. **Approval of Outage where Approving Authority is SLDC**

10.6.1. SLDC shall study the impact of proposed outages on the system and approve the outage latest by 12:00 Hrs of D-1 day. A copy of the approval / refusal list shall also be sent to NRLDC through E-mail.

10.6.2. Outages in the same corridor shall not be approved simultaneously and shall be rescheduled accordingly.

10.7. In case of any system constraint or any other reason, approving authority may decline the proposed outage by giving the reasons for the same and tentative dates for the shutdown.

10.8. In case, any approved outage is not availed in real time, the same may not be allowed again in that month except the shutdown is not availed due to bad Weather conditions. In such a scenario, indenting agency shall be required to submit a fresh proposal in the next OCC meeting.

10.9. A list of all approved outages for the next day must be available in the NRLDC/NLDC control room by 12:00 hours with a copy of the study results and actions to be taken, if any. This would be studied by the night shift engineers so that the outage can be facilitated the next day morning.

11. Approval for other grid elements (Outage period less than 2 days)

Indenting agency shall punch the request in Web portal / through E-mail from 10:00 hrs/D-4 to 10:00 hrs/D-3 to NRLDC for availing the outage of other grid elements published by NRLDC. Outage facilitation priority may be given to OCC/Post OCC approved outages. Indenting Agency shall submit the proposed shutdown as per ***Format I.***

12. Approval of Emergency Outages

12.1. All outages which are not approved in the OCC meeting but having impact on human and equipment safety shall be considered under Emergency Outage category.

12.2. The request for emergency outage shall be submitted to NRLDC/NLDC along with the details like nature of emergency, proof of emergency, relevant photograph, impacts due to emergency situation, reasons and associated facts for not considering in the outage planning process.

12.3. Emergency outages shall be allowed subject to system conditions and its severity. In this case, if required, planned outage may be deferred, if possible.

12.4. Emergency outages shall be allowed immediately or within the short possible time, based on the severity of the emergency and system condition on instance to instance basis.

13. Availing Outages in real time

13.1. The agencies involved shall ensure availing of outages as per the approved schedule time.

13.2. On the day of outage, the outage availing agency shall seek the code for availing outage from respective RLDC(s) /NLDC (wherever applicable). The agencies involved shall endeavour to avail the outage within 15 minutes of availing the code but not later than 30 minutes. In case, due to any contingency, the outage could not be availed within 30 minutes but not later than 60 minutes, a fresh code needs to be obtained by all concerned agencies stating the reason there of Record of scheduled and actual time of outage and restoration shall be maintained at NRLDC/NLDC.

13.3. Each user shall obtain the final clearance from NLDC or the concerned RLDC, prior to the planned outage of any grid element. The clearance shall also be obtained from SLDC for a grid element of the State Control areas.

13.4. In case of grid disturbances, system isolation, partial black-out in a State or any other event in the system that may have an adverse impact on the system security due to a proposed outage,

(17) NLDC, RLDC or SLDC, as the case may be, shall have the authority to defer the planned outage;

(ii) SLDC, RLDC or NLDC, as the case may be, before giving clearance of the planned outage may conduct studies again.

13.5. As any deviation in the outage from the schedule can affect other planned outages as well as affect reliability and electricity markets, indenting agency must strictly adhere to the shutdown timings.

13.6. The status of transmission elements planned vs. availed by the indenting agency shall be prepared by NRLDC and same to be discussed in ensuing OCC for better planning or coordination by requesting agencies. A suggestive format is enclosed as ***Format V***

14. Maintenance Work on Opportunity Basis

14.1. Any maintenance work on opportunity basis proposed to be carried out by related agencies during the period of a shutdown already approved by NRLDC would need the approval of NRLDC. The same if approved would also be intimated by NRLDC to the agency, which initially applied for the planned shutdown. The delay or extension of time in returning the shutdown attributable to such opportunity shutdown shall also be indicated separately.

15. Hotline Maintenance

15.1. In view of maintaining system availability and reliability of Transmission system, Transmission licensee can do rectification of critical/shutdown nature defects by HOT LINE MAINTENANCE techniques with trained personnel for hotline maintenance.

15.2. All Safety norms specified in Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023 of Hot line maintenance works, shall be followed. Link for the document is https://cea.nic.in/wp-content/uploads/regulations_cpt/2023/06/pdf_100_183_English-1.pdf Section 21 and Schedule-1 of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023 are attached as Annexure-III.

15.3. All responsibility of safety measures to be followed lies with the transmission licensee and along with the application of Auto reclosure to be switched to non-auto mode, written declaration from the appropriate authority (not below the level of Deputy General Manager/ Executive Engineer/ Substation In-charge) stating that all safety precautions are being followed.

15.4. Auto reclosure of transmission line shall be kept “Auto reclosure – Non auto mode” position for the line at both ends in which HOT LINE maintenance work is to be carried out.

15.5. Format of Declaration for hotline maintenance is attached as Annexure-II of this document.

16. Safety Measures and Switching Operations during Outage

16.1. The operation code issued by NRLDC for opening / revival of the transmission element signifies such approval only from the system point of view notwithstanding anything contained in respect of safety measures and other switching operations to be carried out locally. The related line / substation personnel would be responsible for ensuring all safety precautions to be followed while opening / closing of any element to avoid any threat to operating personnel and equipment.

17. Normalization of Outages

17.1 All effort shall be made by the Indenting agency to normalise the shut down within approved time period so that the transmission element is normalised within the approved time period.

17.2. On completion of the outage work, the outage availing agency shall seek the code for normalisation of elements from respective RLDC(s)/NLDC (wherever applicable). The agencies involved shall endeavour to normalise the outage within 15 minutes of availing the code but not later than 30 minutes. In case, due to any contingency, the normalisation could not be done within 30 minutes but not later than 60 minutes, a fresh code needs to be obtained by all concerned agencies stating the reason thereof.

17.3. In case of extension of a shutdown, the Indenting agency would furnish the reasons of extension, and expected normalisation time to NRLDC/SLDC at least two hour before the scheduled normalisation time.

17.4. In case shutdown is extended beyond one day, then utility should approach for consent/approval with proper reason and justification of delay to SLDC/NRLDC/NLDC with a copy to NRPC. SLDC/NRLDC/NLDC would take appropriate decision considering the grid situation.

17.5. Under such circumstances SLDCs/NRLDC/NLDC shall review the impact of such delay on the shutdown already approved transmission system and would reserve the right to review for according/cancellation of the shutdown.

17.6. In case of repeated delay in normalisation of outages by any agency, the same shall be reported by SLDCs/NRLDC/NLDC to NRPC.

18. Revision of Procedure

18.1. The procedure shall be reviewed and revised by NRPC after stakeholder consultation and with intimation to the Commission.

18.2. Under exigencies, the procedure shall be reviewed and revised by NRPC with intimation to the Commission. Stakeholder consultation shall follow subsequently.

List of Annexures:

Sl No.	Annexure No	Title
1	Annexure I	Important Elements of NLDC
2	Annexure II	Hotline Maintenance

List of Formats:

Sl No.	Format	Title	From (Agency)	To (Agency)
1	Format I	Request for Transmission Element Outage	Indenting Agency	RPC
2	Format II	List of monthly proposed shutdowns of Transmission elements	RPC	Website
3	Format III	List of monthly approved shutdowns of Transmission elements	RPC	Website
4	Format IV	Request for emergency outage	Indenting Agency	RLDC
5	Format V	Status of transmission elements planned vs. availed	RLDC	RPC

Annexure I

NR to WR:

S No	Element Name	TTC/ATC Impact
1	Mundra Mahindragarh single pole	NR-WR
2	Mundra Mahindragarh Bipole	NR-WR
3	400 kV Kankroli - Zerda	NR-WR
4	one circuit of 765 kV Chhitorgarh - Banaskantha D/C	NR-WR
5	one circuit of 765 kV Chhitorgarh - Ajmer D/C	NR-WR
6	400 kV Kankroli - Jodhpur	NR-WR
7	HVDC Balia- Bhiwadi Monopole	NR-WR
8	One Circuit of Bikaner - Khetri D/C	NR-WR
9	One Circuit of Bhadla II - Ajmer D/C	NR-WR
10	One Circuit of RAPP-C - Shujalpur D/C	NR-WR
11	One Circuit of 400 kV Banaskatha - Veloda D/C	NR-WR
12	HVDC Vindhyanchal HVDC Monopole (NR - WR)	NR-WR
13	765 kV Dhule - Vadodara S/C	NR-WR
14	765 kV Indore - Vadodara S/C	NR-WR
15	one 765/400 kV, 1500 MVA ICT at Banaskantha	NR-WR

WR to NR and ER-NR:

S No	Element Name	TTC/ATC Impact	
1	Mundra Mahindragarh single pole	NA	ER-NR
2	Mundra Mahindragarh Bipole	WR-NR	ER-NR
3	Champa Kurukshetra single pole	WR-NR	ER-NR
4	Champa Kurukshetra bipole	WR-NR	ER-NR
5	Champa Kurukshetra Pole 1, 2 & 3	WR-NR	ER-NR

6	Champa Kurukshetra Pole 1, 2, 3 & 4	WR-NR	ER-NR
7	APD - Agra Pole single pole	NA	ER-NR
8	765 kV Vindhyachal - Varanasi S/C	WR-NR	ER-NR
9	765 kV Agra - Jhatikara S/C	NA	ER-NR
10	765 kV Aligarh-Jhatikara S/C	NA	ER-NR
11	765 kV Phagi - Gwalior S/C	NA	ER-NR
12	765 kV Agra - Gwalior S/C	WR-NR	ER-NR
13	765 kV Agra - Fatehpur S/C	NA	ER-NR
14	765 kV Phagi-Bhiwani S/C	NA	ER-NR
15	765 kV Phagi-Ajmer S/C	NA	ER-NR
16	765 kV Anpara C-Unnao Line	NA	ER-NR
17	765 kV Gwalior - Orai S/C	NA	ER-NR
18	765 kV Aligarh - Orai S/C	WR-NR	ER-NR
19	765 kV Satna-Orai Line	WR-NR	ER-NR
20	765 kV Satna-Gwalior Line	WR-NR	ER-NR
21	765 kV Satna-Bina S/C	NA	ER-NR
22	765 kV Aligarh-Greater Noida S/C	NA	ER-NR
23	765 kV Fatehabad-Greater Noida S/C	NA	ER-NR
24	765 kV Chhitorgarh - Banaskantha S/C	NA	ER-NR
25	765 kV Chhitorgarh - Ajmer S/C	NA	ER-NR
26	765 kV Bhadla - Bikaner S/C	NA	ER-NR
27	765 kV Bhadla II - Ajmer S/C	NA	ER-NR
28	765 kV Jabalpur - Orai S/C	NA	ER-NR
29	765 kV Agra - Aligarh S/C	NA	ER-NR
30	765 kV Gaya - Varanasi S/C	NA	ER-NR
31	765 kV Gaya - Balia S/C	NA	ER-NR
32	765 kV Jabalpur - Vindhyachal S/C	NA	ER-NR
33	400 kV Gaya-Chandwa-S/c	NA	ER-NR
34	400 kV Gaya-Chandwa-D/c	NA	ER-NR
35	400 kV Ranchi-Chandwa S/C	NA	ER-NR
36	400 kV Ranchi-Chandwa-D/c	NA	ER-NR

37	765 kV Vindhyachal - Varanasi D/C	WR-NR	ER-NR
38	765 kV Vindhyachal - Jabalpur D/C	WR-NR	ER-NR
39	765 kV Agra - Gwalior D/C	WR-NR	ER-NR
40	765 kV Agra - Fatehpur D/C	NA	ER-NR
41	765 kV Phagi - Gwalior D/C	WR-NR	ER-NR
42	765 kV Phagi-Bhiwani D/C	NA	ER-NR
43	765 kV Phagi-Ajmer D/C	NA	ER-NR
44	765 kV Aligarh - Orai-D/c	WR-NR	ER-NR
45	765 kV Chhitorgarh - Banaskantha D/C	NA	ER-NR
46	765 kV Chhitorgarh - Ajmer D/C	NA	ER-NR
47	765 kV Bhadla - Bikaner D/C	NA	ER-NR
48	765 kV Bhadla - Ajmer D/C	NA	ER-NR
49	one 765/400 kV, 1500 MVA ICT at Vindhyachal	NA	ER-NR
50	one 765/400 kV, 1500 MVA ICT at Satna	NA	ER-NR
51	one 765/400 kV, 1500 MVA ICT at Varanasi	NA	ER-NR
52	one 765/400 kV, 1500 MVA ICT at Agra	NA	ER-NR
53	one 765/400 kV, 1000 MVA ICT at Orai	NA	ER-NR
54	one 765/400 kV, 1500 MVA ICT at Phagi	NA	ER-NR

Annexure II

Regulation-21 of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023

21. Handling of electric supply lines and apparatus. – (1) Before any conductor or apparatus is handled, adequate precautions shall be taken, by earthing or other suitable means, to discharge electrically such conductor or apparatus, and any adjacent conductor or apparatus if there is danger therefrom, and to prevent any conductor or apparatus from being accidentally or inadvertently electrically charged when persons are working thereon shall be followed as per the relevant standards.

(2) Every person who is working on an electric supply line or apparatus or both shall be provided with, –

(a) personal protective equipment, tools and devices such as rubber gloves and safety footwear suitable for working voltage, safety belts for working at height, nonconductive ladder, earthing devices of appropriate class, helmet, line tester, hand lines, voltage detector and hand tools as per the relevant standards; and

(b) any other device for protecting him from mechanical and electrical injury due to arc flash and such personal protective equipment, tools and devices shall conform to the relevant standards and shall always be maintained in sound working condition.

(3) No person shall operate and undertake maintenance work on any part or whole of an electrical plant or electric supply line or apparatus and no person shall assist such person on such work, unless he is designated in that behalf and observes the safety precautions given in Part-I, Part-II, Part-III and Part-IV, as the case may be, of Schedule I.

(4) Every telecommunication line on supports carrying an overhead line of voltage exceeding 650 V but not exceeding 33 kV shall, for the purpose of working thereon, be deemed to be a line of voltage exceeding 650 V:

Provided that prior permission shall be taken from the concerned licensee before laying telecommunication lines on electric supports.

(5) For the safety of operating personnel, all non-current carrying metal parts of switchgear and control panels shall be properly earthed and insulating floors or mat conforming to the relevant standards, of appropriate voltage level shall be provided in front and rear of the panels where such personnel are required to carry out operation, maintenance or testing work.

(6) All panels shall be painted with the description of their identification at front and at the rear.

Schedule-1 of Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023

Schedule I

Handling of electric supply lines and apparatus

[See sub-regulation (3) of regulation (21)]

Part-I

Precautions to be observed: -

(1) Hotline maintenance trained personnel only shall be designated to do work on line.

(2) Work permit shall be taken from the terminal substations at each end of the line.

(3) Work shall be performed with proper planning and prior understanding and clarity.

(4) Favourable climatic condition for hotline operations is sunny weather. If the weather forecasts rain or thunderstorms work will not begin.

(5) Organisation of work shall be discussed among the members and responsibility of each team member fixed.

(6) Before going to the work site, all equipment and tools shall be inspected and checked for correct operation.

(7) Auto re-closure shall be in `OFF' position for the line at both ends.

(8) The work procedure shall be discussed with the team member at the tower location and the responsibility of each member shall be properly defined.

(9) The land in close vicinity to the tower/poles shall be cleared to provide a site area for the required tools.

(10) All cleaned hot sticks, strain carrier and other assemblies shall be kept on the hotline tool rack to avoid ground contact.

(11) Helmet, safety shoes and safety belt shall compulsorily be used.

(12) All hot sticks and ladders shall be cleaned and checked for integrity by the hot sticks tester.

(13) All linemen in the hotline team shall be equipped with personal protective equipment during the work.

(14) No live-line team members on the tower and conductor shall wear any metallic chain, wristwatch or ring to avoid any circulating current.

(15) The team of linemen shall wear conductive socks, boots, helmets and hand gloves. The `hot-end' lineman shall wear complete bare hand suit.

(16) Tarpaulin sheet should be laid on the work area.

(17) A light vehicle shall be kept nearby during entire work period.

Tools normally required for hot line maintenance operation: -

The following tools conforming to the relevant standards or equivalent specifications shall be used in on-line working:

(1) Wire tongs;

(2) Wire tongs saddle;

(3) Tie sticks;

(4) Strain link sticks;

(5) Roller link sticks;

(6) Suspension link sticks;

(7) Auxiliary arms;

(8) Strain carrier;

(9) Gin poles;

(10) Cum-a-along clamp;

(11) Safety equipment like conductor guards, X-arm guards, insulator covers, hand gloves and the like; and

(12) Hot sticks.

Safe Working Distance: -

The following safe working distances shall be observed for hot line maintenance operations:

Phase to Phase	Safe Clearance
kV	Metre
11	0.61
33	0.71
66	0.91
110	1.02
132	1.07
220	1.52
400	2.13

Declaration for Application of Hotline Maintenance

To,

Shift In-charge, NRLDC

All Safety norms specified in Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023 of Hot line maintenance works, will be followed. All responsibility of safety measures to be followed lies with the executing agency.

Date of Application:

Date of Hotline Maintenance:

Signature and Stamp of Authorized person

Name:

Designation:

(not below the level of Deputy General Manager/

Executive Engineer/ Substation In-charge)

Name of Substation :_____ Region :_____

Date of Maintenance/Testing :_____

Duration of Hot line work :_____

Sl No:	Particular	Details
1.	Name of Element (Line/ICT/Reactor/Bay no.)/Bus on which Hot line work is to be done	
2.	Details of Work to be carried out.	
	2a)Method adopted for hot line work	Hot Stick/ Bare Hand
	2b) "Risks (Safety Risks/System Risk) Identified during the work"	• Work at Height (Fall hazard) • Exposure to electromagnetic induction • Electrocution • Excess Leakage current from Hot line tools
	2c) Mitigation Measures planned for above Risks.	(1) Hotline maintenance trained personnel only shall be designated to do work on line. (2) Work permit shall be taken from the terminal substations at each end of the line. (3) Work shall be performed with proper planning and prior understanding and clarity. (4) Favorable climatic condition for hotline operations is sunny weather. If the weather forecasts rain or thunderstorms work will not begin. (5) Work shall be carried out only if the leakage current is within limit i.e. 1 micro Amp per kV. (6) Organization of work shall be discussed among the members and responsibility of each team member fixed. The work procedure shall be discussed with the team member at the tower location and the responsibility of each member shall be properly defined. (7) Before going to the work site, all equipment and tools shall be inspected and checked for correct operation. (8) Auto re-closure shall be in `OFF" position for the line at both ends. (9) The land in close vicinity to the tower/poles shall be cleared to provide a site area for the required tools.

Name and Designation of Authorized Person

Signature and Stamp of Authorized Person

		(10) All cleaned hot sticks, strain carrier and other assemblies shall be kept on the hotline tool rack to avoid ground contact. (11) Helmet, safety shoes and safety belt shall compulsorily be used. (12) All hot sticks and ladders shall be cleaned and checked for integrity by the hot sticks tester. (13) All linemen in the hotline team shall be equipped with personal protective equipment during the work. (14) No live-line team members on the tower and conductor shall wear any metallic chain, wristwatch or ring to avoid any circulating current (15) The team of linemen shall wear conductive socks, boots, helmets and hand gloves. The `hot-end" lineman shall wear complete bare hand suit. (16) Tarpaulin sheet should be laid on the work area to keep the required tools and other material like conductive suit and other apparels. (17) A light vehicle shall be kept nearby during entire work period.
3.	Premises (Tick ✓ please)	○ **Work in Indenting Licensee Premises** ○ Work is in other utility Premises. ○ Work on Transmission Line
4.	Ensure the following before start of Hot line work (Tick ✓ please)	○ Minimum approach distance (MAD)/Safe Working Distance is maintained by the linesmen when they are exposed to energized parts. ○ The Hot line tools are tested by Hot stick tester and results are OK. ○ CHECKED PPE (Steel rope , Clamps, PP Rope , helmets , safety belts etc.) ○ SAFETY PEP talk before start of work by Maintenance I/C. ○ **Ensure presence of at least 2 executives from Transmission licensee and other utility if applicable.**

Name and Designation of Authorized Person

Signature and Stamp of Authorized Person

Format I: Request For Transmission Element Outage by indenting agency to NRPC

Format I: Request For Transmission Element Outage by Indenting agency to RPC												
Indenting Agency						For the month				Date		
S No	Request Type	OCC Number	Name of Requesting Agency	Element Name	Daily/ Continuous	Reason	From Date	From Time	To Date	To Time	Remarks	Tag
1	PLANNED/ Post OCC	OCC_XXX			C							Outage
2	PLANNED/ Post OCC	OCC_XXX			D							Outage
3	PLANNED/ Post OCC	OCC_XXX			C							Online
4	PLANNED/ Post OCC	OCC_XXX			D							Online
6	PLANNED/ Post OCC	OCC_XXX			C							AR in non-auto
7	PLANNED/ Post OCC	OCC_XXX			D							AR in non-auto
.												

Format II: List of Received Proposals for Transmission Element Outage from Different Agencies

Format II: List of Received Proposals for Transmission Element Outage from Different Agencies												
Name of RPC						For the month				Date		
S No	Request Type	OCC Number	Name of Requesting Agency	Element Name	Daily/ Continuous	Reason	From Date	From Time	To Date	To Time	Remarks	Tag
1	PLANNED /Post OCC	OCC_XXX			C							Outage
2	PLANNED /Post OCC	OCC_XXX			D							Outage
3	PLANNED /Post OCC	OCC_XXX			C							Online
4	PLANNED /Post OCC	OCC_XXX			D							Online
6	PLANNED /Post OCC	OCC_XXX			C							AR in non-auto
7	PLANNED /Post OCC	OCC_XXX			D							AR in non-auto
.												

Format III: List of OCC approved shutdowns of Transmission Elements

Format III: List of OCC approved shutdowns of Transmission Elements														
Name of RPC						For the month				Date				
Request Id	Request Type	OCC Number	Name of Requesting Agency	Element Name	Owner	Daily/ Continuous	Reason	From Date	From Time	To Date	To Time	RLDC/NLDC Remarks	OCC S/d Status	OCC Remarks
													Approved	
													Deferred	
													Deferred	

Format IV: Request for Transmission Element Outage by Indenting Agency to RLDC/SLDC

Request for emergency shutdown of elements to be submitted by requesting utility		
1	Element Name	
2	Reason	
3	Proposed Shutdown start Date and time	
4	Proposed Shutdown end Date and time	
5	Daily basis or continuous basis	
6	Proof of emergency (Attachment to be added along with outage proposal)	
7	Any other element/bay is under out in outage proposed stations	
8	Quantum of load or area affected during the outage	
9	Previous maintenance work carried out date	
10	Name and Designation of the officer responsible for site work	
11	Site contact number/responsible officer contact number	
12	Utility Remarks	
13	SLDC Remarks/Consent	

Format V: Monthly Shutdown Report for Transmission Elements by RLDCs

S No.	Name of Constituent	No. of outages planned in OCC	No. of planned outages in Post OCC	Total planned outages	Number of final outages approved	Number of actual outages availed	Availed vs Planned (%)	Availed Vs Approved (%)
		(a)	(b)	(c) = (a+b)	(d)	(e)	(f) = (e/c)	(g) = (e/d)
1	Constituen-1							
2	Constituen-2							
3								
4								
. . .								
	XXX Region							

Scope of work for

Centralized Database containing details of relay settings for grid elements connected to 220 kV and above

Scope of software shall be broadly as below for all elements in Northern Region connected to 220 kV and above voltage level:

A. **Protection Settings Database Management System.**
B. **Protection Setting Calculation and Study Tool.**
C. **Repository of DR/EL and analysis.**
D. **Application of protection settings by utilities and its approval by NRPC.**
E. **Reporting of performance indices by utilities.**
F. **Repository of protection audit reports.**

A. Protection Settings Database Management System

1. To create facility to store all types of relay settings of all power system elements (connected to 220 kV and above in Northern Region such as lines, cable, ICT, Reactor/Capacitor, generator, GT, STATCOM/SVC, FSC/TCSC, HVDC) in one system irrespective of the manufacturer and relay type and controlled access to users.
2. Complete modeling of elements with relevant system parameters **based on data received from utilities** for transmission lines, generators, transformers, reactors, substation layouts, and associated protective relays in the substations. The model should include CT, PT, Isolator, Breaker and other bay equipment's ratings along with rating of the BUS and the type of conductor used for the BUS. The modeling should be done as per bus-breaker philosophy instead of node-oriented model.
3. Creation of necessary relay templates of all make and model existing in grid. **Template for electro-mechanical relay shall also be required to be created. Users shall have option to provide settings of electro-mechanical relay.**
4. Option to users to upload relay setting files (downloaded from relay) directly.
5. To capture the life cycle of protection settings and template.
6. To create an interface with Protection Setting Calculation and Study Tool.

7. To provide Role based access control.
8. Building the entire Northern region network data for load flow and fault calculation, Protection database and substation SLD preparation.
9. Hardware setup and software package capable of meeting the above objectives. Associated servers for installation and Deployment of application and database software along with standard Operating System –With Main and Back up.
10. Work flow Management.
11. Availability of historical fault data for predicting nature of fault.
12. The tool should be capable of analyzing, storing, and handling all fault records (Disturbance record, Event Logger, COMTRADE files, etc.) for a minimum period of prescribed years; and the updated database to be used for fault analysis should be permanently available.
13. Reports:
    a. Feature to generate reports as per user requirement.
    b. User can generate report in standard format like .xls, .pdf.
14. History log: All user activities such as user operations, data management, template management, configuration management and workflow shall be logged to track the user activities.
15. Import and Export: There shall be an option to import template and data from any third party application in standard formats like .xml and .xls
16. Relay characteristics curve can be drawn from the setting data.
17. Provision to attach documents to relay template and relay data can be made available. Option to accept setting data as per the audit and verify/compare the field setting with protection database setting and generate error report.
18. Provision to store and retrieve audit reports.
    c. Provision to store and retrieve relay tripping incidence report.
    d. Facility to store and retrieve setting guidelines as per various committees.
    e. Automatic Reconciliation Tool should be available which will generate automatic reconciliation requests for relay settings in the database.
    f. Up-to-date application guides and user manuals of all relays is a part of the relay library.
19. A user-friendly interface with features such as
    a) Web based System.

b) Role based access control
c) Flexible customization of user roles, grants, actions from Master control panel
d) User Access Monitor
e) Relay Template Management
f) Create\Edit\Delete relay templates
g) Viewing relay template
h) Locking and Unlocking templates
i) Copy & Edit templates from the existing template
j) Import and Export templates
k) Relay Data management
l) Create\Edit\Delete relay data
m) Viewing relay data
n) Locking and Unlocking relay data
o) Copy & Edit relay data from the existing data
p) Import and Export relay data

20. Built with standard relays library data for different manufacturers, including but not restricted to the following protection features:

i. **Transmission Line & cable (including compensated):**
Distance, over current, earth fault, over voltage, Line Differential protection.

ii. **Power Transformer:**
Differential Protection, Under Impedance protection, Over fluxing Protection, Thermal Overload Protection, Low Impedance Restricted Earth Fault Protection, High Impedance Restricted Earth Fault Protection, back-up over current (Directional/ Non-Directional) and earth fault protection (Directional/ Non-Directional).

iii. **Shunt Reactors:**
Differential protection, Restricted Earth Fault, Back Up Protection (Impedance / overcurrent)

iv. **Generator:**
Differential Protection, Stator Earth Fault Protection (Both 95% and 100% protection), Inter – Turn Differential Protection, Backup impedance, Voltage Controlled O/C, Negative Sequence, Field Failure,

Reverse Power/Low forward Power, Pole Slipping, Overload, Over voltage, Under Frequency, Dead Machine, Rotor Earth Fault, Over Fluxing.

v. **Generator Transformer/ Unit Auxiliary Transformer:**

Differential Protection, Back up Earth Fault Protection, Back up over current, Restricted Earth Fault.

vi. **HVDC:**

- Converter Protection: Valve Short Circuit Protection, DC Differential Protection, DC Harmonic Protection, DC Under voltage Protection, DC Overvoltage Protection, AC Over voltage Protection, AC Under voltage Protection, AC Voltage Stress Protection of Converter, Group Differential Protection, Bridge Differential Protection, Overcurrent Protection, Sub-Synchronous Resonance Protection, AC Valve Winding Ground Fault Supervision,
- DC Filter Protection: Capacitor Differential Over current Protection, Capacitor Unbalance Supervision, Inverse Overcurrent Time Protection, DC Filter Differential Protection,
- DC Line Protection: Travelling Wave Front Protection, Under voltage Sensing Protection, Under voltage Operation Protection, DC Line Differential Protection, AC-DC Conductor Contact Protection.
- Electrode Line Protection: Electrode Bus Differential Protection, Electrode Current Balance Protection, Electrode Over Current Protection, Electrode line open circuit Over voltage Protection, Station Ground Overcurrent Protection, Open Conductor Electrode Line Protection
- DC Busbar Protection: HV Side DC Bus bar Differential Protection, Neutral Side DC Busbar Differential Protection, DC Differential Backup Protection, Valve Protection
- Converter Transformer Protection: differential protection, high impedance, restricted earth fault protection, ground earth fault overcurrent protection, thermal overload protection, over-fluxing protection, directional definite time / inverse-time overcurrent protection and directional earth fault overcurrent protection.

- AC Filter Sub-bank Protection (Shunt/Capacitor/Resistor): Differential, overcurrent, overload, unbalance supervision, Zero Sequence Overcurrent.

vii. STATCOM:

- Transformer Protection: Differential protection, REF protection, Directional Overcurrent protection, Ground Overcurrent, over flux protection, Transformer mechanical trips.
- STATCOM (MV) Bus protection: Bus Differential protection, Ground over current protection, used with neutral Grounding Transformer, Under/ Over Voltage protection, Over voltage (Open Delta) protection.
- STATCOM Branch Protection: Differential protection and/or O/C protection, Ground over current protection , Valve Overcurrent protection (in Controls), DC overvoltage protection (in Controls)
- MSR/TCR Branch Protection: Differential protection, Ground over current protection, Reactor branch unbalance protection, Thermal Overload protection.
- MSC/TSC Branch Protection: Differential protection, Ground over current protection, Capacitor Overvoltage (Using current signal) protection, Capacitor unbalance protection, over current protection.
- Harmonic Filter Protection: Ground over current protection, Capacitor Overload (Using current signal) protection, over current protection, Neutral Voltage shift.
- Auxiliary Transformer Protection: Over current, open delta voltage protection.

viii. SVC:

- Coupling Transformer (HV & MV) Protection: Differential protection, REF protection, Directional Overcurrent protection, Ground Overcurrent, over flux protection, Transformer mechanical trips.
- SVC Bus Bar protection: Bus Differential protection, Ground over current protection, used with neutral Grounding Transformer, Under/ Over Voltage protection, Over voltage (Open Delta) protection.

- TCR Protection: Differential protection, Ground over current protection, Reactor branch unbalance protection, Thermal Overload protection.
- TSC Protection: Differential protection, Ground over current protection, Capacitor Overvoltage (Using current signal) protection, Capacitor unbalance protection, over current protection.
- Harmonic Filter Protection: Differential protection, Ground over current protection, Capacitor Overvoltage (Using current signal) protection, Capacitor unbalance protection, over current protection, Neutral Voltage shift.
- Auxiliary Transformer Protection: Over current, open delta voltage protection.

ix. **FSC & TCSC:** Capacitor unbalance, Capacitor overload, Line current supervision, MOV overload, MOV short term energy protection, MOV high current protection, MOV high temperature protection, MOV failure protection, Flashover to platform protection, Spark Gap protection, Trigger circuit supervision, Sub-harmonic protection, Pole disagreement protection, Bypass switch failure protection,

x. **BUSBAR & LBB**: Differential protection, Beaker Failure Protection

21. Protection Settings Database Management System shall be suitable for integration with other portals, software of protection. It shall be able to integrate any third party application to share data between protection database management software and calculation engine/tool and vice versa.
22. Training of utilities.
23. AMC.

B. Protection Setting Calculation and Study Tool.

This module shall be capable of giving recommendation of Protection Setting for protections of elements as mentioned under point no. 20 of para A. Calculation Tool should be capable of performing the following:

1. Relay co-ordination for power system elements. Co-ordination check shall be conducted for relays of all make.
2. Primary/back-up relay pairs generation.
3. Fault calculation will be a part of relay co-ordination program.

4. Transparent Fault calculation results.
5. Simulation engines for protection co-ordination, power flow analysis, fault calculation, transient stability studies, electromagnetic transient analysis, and protection relay operation post-mortem analysis. There should be features to study low frequency oscillations, 3rd zone tripping, PSS tuning support and Voltage collapse prediction feature.
6. The protection calculation tool should be capable of interacting with the relay data in the database.
7. Tool for simulating the performance/ behavior of the protection system under all possible normal and abnormal operating conditions of the power system, including effect of changing one or more parameter setting of the relays.
8. Diagnostics Tool for verifying proper coordination among various protective relays.
9. Computation of critical clearing time.
10. Plotting Log-Log grid and graphs.
11. Option to check existing relay settings with respect to field or vice versa.
12. Computation of Out of Step Tripping Protection Settings.
13. Display of sequence operation of relays with respect to tripping time.
14. Switching status for all relays elements from the screen.
15. Association of relays to power system elements.
16. Disturbance analysis can be done on mapping of disturbances files with corresponding relay.
17. It shall have standard power system components and relay symbols.
18. Automatic computation of zone setting for distance protection.
19. Feature for viewing existing and newly computed relay settings.
20. Pre-loaded standard relay curves.
21. Directional and non-directional feature for relays.
22. Overload factor, unbalance factor and discrimination time (user defined/selectable) for each relay.
23. Inbuilt discrimination time calculator for grading of relays.
24. Facility to model the back-up protection settings of generating units / GTs.

C. Repository of DR/EL and analysis.

a) Platform for upload of DR/EL by utilities and access to all.

b) Tracking of non-compliance in uploading.

c) Tool for analysis of DR/EL.

d) Tool shall be integrated with outage portal of NRLDC so that it can capture details of outages of elements automatically from NRLDC portal so that users can upload DR, EL, FIR, tripping report, analysis report.

D. Application of protection settings by utilities and its approval by NRPC.

a) Platform for application of protection setting by utilities.

b) Hierarchical role for scrutiny and approval of setting by NRPC.

c) Intimation of approval of settings by NRPC.

d) Intimation of implementation of settings by utilities.

E. Reporting of performance indices by utilities.

a) Platform for reporting of performance indices by utilities.

b) Feature for scrutiny and intimation of errors to utilities by NRPC.

c) Recording of justification note for non-compliance.

F. Repository of protection audit reports.

a) Platform for reporting of internal and external audit report of all utilities.

b) Tracking non-compliance and next due date.

c) Web-based Checklist for protection audit should be made available for Constituents to self-auditing.

*****

Annexure-A.VI

RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LTD

[Corporate Identity Number CIN: U40109RJ2000SGC016485]
(AN ISO 9001:2015 CERTIFIED COMPANY)
Regd. Office: VidyutBhawan, Janpath ,Jyoti Nagar, Jaipur 302005

OFFICE OF THE SUPERINTENDING ENGINEER (Automation, N/M &SP)
Rom No.323, VidyutBhawan, Janpath ,Jyoti Nagar, Jaipur (Tel.No. 2740752 / Fax No. 2740794)
Email: se.pp@rvpn.co.in, website: www.http://emergy.rajasthan.gov.in/rvpnl

No. RVPN/ SE(AUTOMATION)/ XEN(PP&D)/ AE-2(P&P)/ D.116 Jaipur Date 21.12.2023

The General Manager (NRLDC)
Grid Controller of India Limited,
18-A, ShaheedJeet Singh SansanwalMarg, KatwariaSarai
New Delhi-110016.

Sub:-Proposed SPS for 2x315MVA, 400/220 kV ICTs at Suratgarh Thermal Power Station.

On the above captioned subject, please find attached the proposed SPS for 2x315 MVA, 400/220 KV ICTs at Suratgarh Thermal Power Station with request to please include in the next meeting of OCC for discussion and necessary approval of the OCC forum. This SPS has been finalized after detailed deliberations with the officers of RVPN, RVUN and Rajasthan SLDC in a meeting held on dated 12.12.2023.

Encl: As above

Yours sincerely,

(S.C. Meena)
Chief Engineer (PP & D)

Copy to the following for information and necessary action please-

1. The Member Sceratry (NRPC), 18-A, ShaheedJeet Singh Marg, KatwariaSarai, New Delhi-110016
2. The Chief Engineer (LD/T&C/MPT&S/O&M), RVPN, Jaipur/Jodhpur/Jodhpur/RVUN-STPS-Suratgarh.
3. The Chief Engineer, Power System Planning & Appraisal-I Division, CEA, Sewa Bhawan, RK Puram-I, New Delhi-110066
4. The Superintending Engineer (Operation), NRPC, 18-A, ShaheedJeet Singh Marg, Katwaria Sarai, New Delhi-110016.
5. The System Operator-2, NRLDC, 18-A, ShaheedJeet Singh Marg, Katwaria Sarai, New Delhi-110016

Encl: As above

Chief Engineer (PP & D)

Signature valid
Digitally signed by Suresh Chand Meena
Designation : Chief Engineer
Date: 2023.12.20 16:10:35 IST
Reason: Approved

Proposed SPS for 2x315 MVA, 400/220 kV ICTs at SURATGARH THERMAL POWER STATION

1. Generation Details at STPS

- There is generation on the 220 kV voltage level and 400 kV voltage level at Suratgarh Thermal Power Station (STPS).
- There are 6 generating units at STPS. Each unit is rated at 250MW. Two generators are connected on the 220 kV bus and four generators are connected on the 400 kV bus. Details of the generating units at STPS are included in Table 1.

Table 1: Generation Capacity at STPS

S. No.	Name of Generating Unit	Rated MW Capacity	Ex-bus Generation	Rated Generation Voltage (kV)	Voltage of Bus to which Generating unit is connected
1	Unit-1	250 MW	225MW	16.5kV	220 kV
2	Unit-2	250 MW	225MW	16.5kV	220 kV
3	Unit-3	250 MW	225MW	16.5kV	400 kV
4	Unit-4	250 MW	225MW	16.5kV	400 kV
5	Unit-5	250 MW	225MW	16.5kV	400 kV
6	Unit-6	250 MW	225MW	16.5kV	400 kV

2. Details of Installed ICTs and Transmission Lines

- There are 2x315MVA, 400/220 kV ICTs at Suratgarh Thermal Power Station (STPS).
- These ICTs are used to step down the power from 400kV voltage level to 220 kV voltage level to meet load demand in Halasar, Bhadra, Rawatsar, Suratgarh, Hanumangarh, Padmapur and Sriganganagar region.
- Loading on these ICTs is maximum during off-RE hours.
- Load sharing on both the ICTs is almost equal.
- 220 kV GSS at Halasar, Bhadra, Rawatsar and Udyogvihar are connected to STPS through 220 kV S/C lines. These GSS are further connected in ring system.
- 220 kV GSS Suratgarh is connected to STPS through 220 kV D/C line.
- 220 kV GSS Suratgarh, 220 kV GSS Padampur, 220 kV GSS Hanumangarh and 220 kV GSS Udyogvihar are connected in ring system.
- Power map of transmission system in Suratgarh and nearby region is shown in Figure 1.

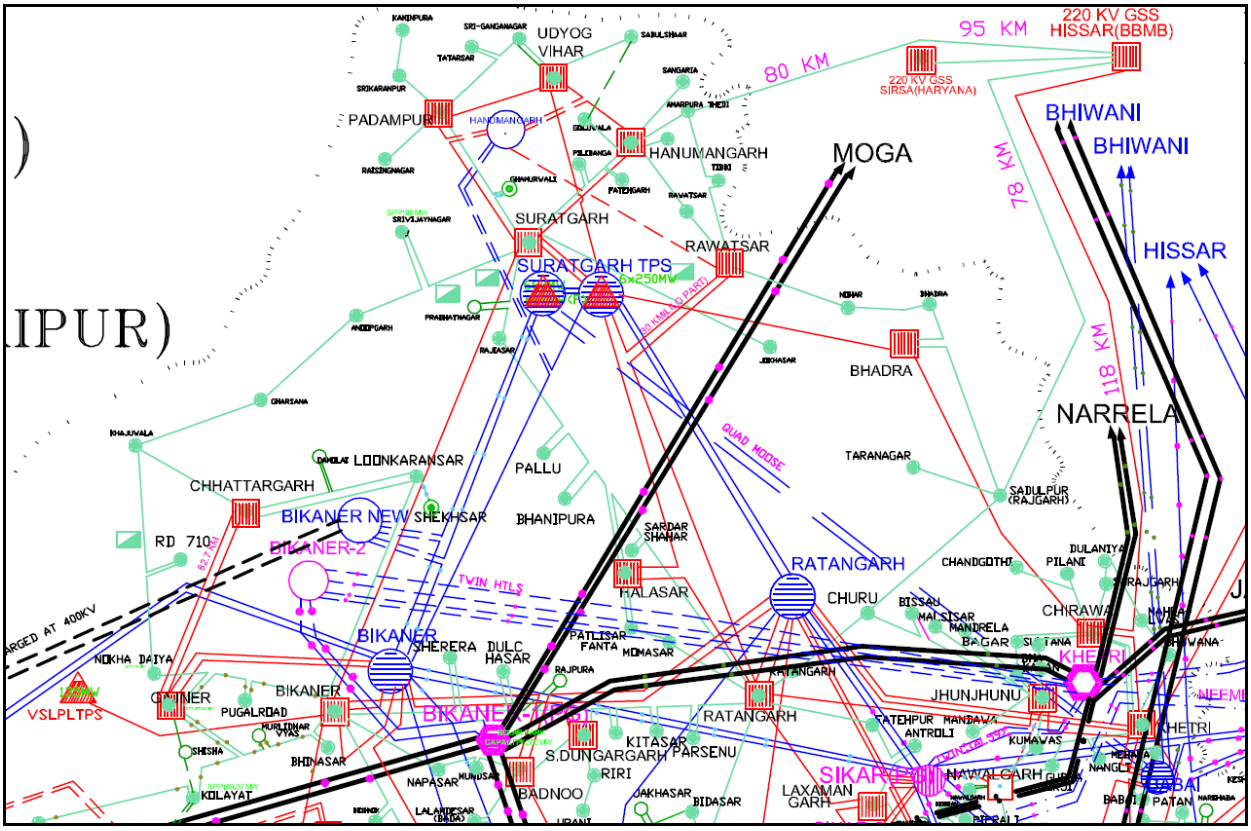


Fig. 1 Power map of Suratgarh region

3. Load Details on ICTs and Transmission Lines Associated with STPS

- The 2x315MVA, 400/220 kV ICTs at STPS are used to cater load demand in the Halasar, Bhadra, Rawatsar, Suratgarh, Hanumangarh, Padmapur and Sriganganagar region.
- Peak Loads recorded on the 400/220 kV ICTs, 400 kV lines and 220 kV lines associated with STPS are detailed below in Table 2.
- Peak loads and average loads recorded on the 220/132 kV Transformers on the 220 kV GSS in the region is also mentioned in the Table 1.

Table 1: Load Details on ICTs and Transmission Lines Associated with STPS and GSS fed from STPS

S. No.	Name of Element	Recorded Peak Load (MW)	Average Load (MW)
1	315MVA, 400/220 kV ILT-I at STPS	297MW	260 MW
2	315MVA, 400/220 kV ILT-II at STPS	297MW	260 MW
3	400 kV STPS-Ratangarh Line-I	640MW	
4	400 kV STPS-Ratangarh Line-II	640MW	
5	400 kV STPS-Bikaner Line	225MW (Bidirectional Power flow)	
6	400 kV STPS-SCSTPS Line-I	550MW (Import)	
7	400 kV STPS-SCSTPS Line-II	550MW (Import)	
8	220 kV S/C STPS-Halasar line	196 MW	106 MW
9	220 kV S/C STPS-Rawatsar line	174MW	120MW
10	220 kV S/C STPS-Bhadra line	209.6MW	174.8MW

11	220 kV S/C STPS-Udyogvihar (Sriganganagar) line	206MW	144MW
12	220 kV STPS-Suratgarh line Ckt-I	246MW	201MW
13	220 kV STPS-Suratgarh line Ckt-II	246MW	200MW
14	220 kV S/C Halasar-Ratangarh line	196 MW	106 MW
15	220 kV S/C Rawatsar-Ratangarh line	134MW	90MW
16	220 kV Suratgarh-Hanumangarh line	246MW	138MW
17	220 kV Suratgarh-Padampur line	191MW	113MW
18	220 kV Suratgarh-Bikaner line	119MW	65MW
19	220 kV Padampur-Udyogvihar line	136MW	70MW
20	220 kV Udyogvihar-Hanumangarh line	145MW	92.75MW
21	100MVA, 220/132 kV transformer-I at Bhadra	87.21MW	74.48MW
22	100MVA, 220/132 kV transformer-II at Bhadra	87MW	64.3MW
23	160MVA, 220/132 kV transformer at Rawatsar	143MW	100MW
24	160MVA, 220/132 kV transformer-I at Halasar	160MW	124MW
25	100MVA, 220/132 kV transformer-II at Halasar	100MW	58MW
26	100MVA, 220/132 kV transformer-I at Suratgarh	105MW	87MW
27	100MVA, 220/132 kV transformer-II at Suratgarh	98MW	78MW
28	50MVA, 220/132 kV transformer-III at Suratgarh	53MW	47MW
29	100MVA, 220/132 kV transformer-I at Hanumangarh	91.10MW	71.37MW
30	160MVA, 220/132 kV transformer-II at Hanumangarh	154MW	122.20MW
31	160MVA, 220/132 kV transformer at Udyog Vihar	148MW	103MW
32	100MVA, 220/132 kV transformer-I at Padampur	60MW	42MW
33	160MVA, 220/132 kV transformer-II at Padampur	82MW	63MW

4. Proposed SPS for ILTs at Suratgarh Thermal Power Station

- Communication channels are available on the following transmission lines which can be used to communicate the trip command from STPS to the transformers installed on the respective 220 kV GSS:-
  - 220 kV S/C STPS-Rawatsar line line
  - 220 kV S/C STPS-Bhadra line
  - 220 kV S/C STPS-Udyogvihar (Sriganganagar) line
- 220 kV GSS Rawatsar is fed from STPS sometimes and sometimes it is also fed from ratangarh depending on the load and grid conditions. Hence, 220 kV GSS Rawatsar cannot be included in the SPS for ICTs at STPS. 220 kV GSS Halasar can be considered for SPS after shifting of a PLCC panel from 220 kV GSS Ratangarh to STPS.
- After detailed analysis of loading conditions, power injection, available communication channels & grid interconnection issues, following universal logic is proposed for the 2x315MVA, 400/220 kV ICTs at Suratgarh Thermal Power Station (STPS) which will work for all the operating scenarios:-

SPS Logic: Overloading of the ILTs due to tripping of generating units on the 220 kV Bus or increased load in the region or tripping of one 315 MVA, 400/220 kV ICT. These overload settings with time delays will be implemented for both the ICTs.

Trip command for the Transformers at 220 kV GSS will be generated from both the ILTs at 100% loading.

- Trip 2x100MVA, 220/132 kV Transformer at 220 kV GSS Bhadra with time delay of 1.0s (**Load curtailment: 138.78MW**)
- Trip 1x160MVA, 220/132 kV Transformer and 1x100MVA, 220/132 kV Transformer at 220 kV GSS Halasar with time delay of 1.2s (**Load curtailment: 182 MW**)
- Trip 1x160MVA, 220/132 kV Transformer at 220 kV GSS Udyogvihar and 132 kV S/C Udyogvihar-Sriganganar line with time delay of 1.4s (**Load curtailment: 103MW**)

- Tripping commands for the transformers installed at the identified 220 kV GSS will be generated from the overload/Over current relays of both the 315MVA, 400/220 kV ILTs at STPS during the condition of overloading of ILTs at STPS. The overloading may be observed due to tripping of generators connected on 220 kV Bus, increased load in the region or tripping of any one of 315MVA, 400/220 kV ICT at STPS. Schematic diagram for implementation of proposed SPS Logic-1 is elaborated in Figure 2.

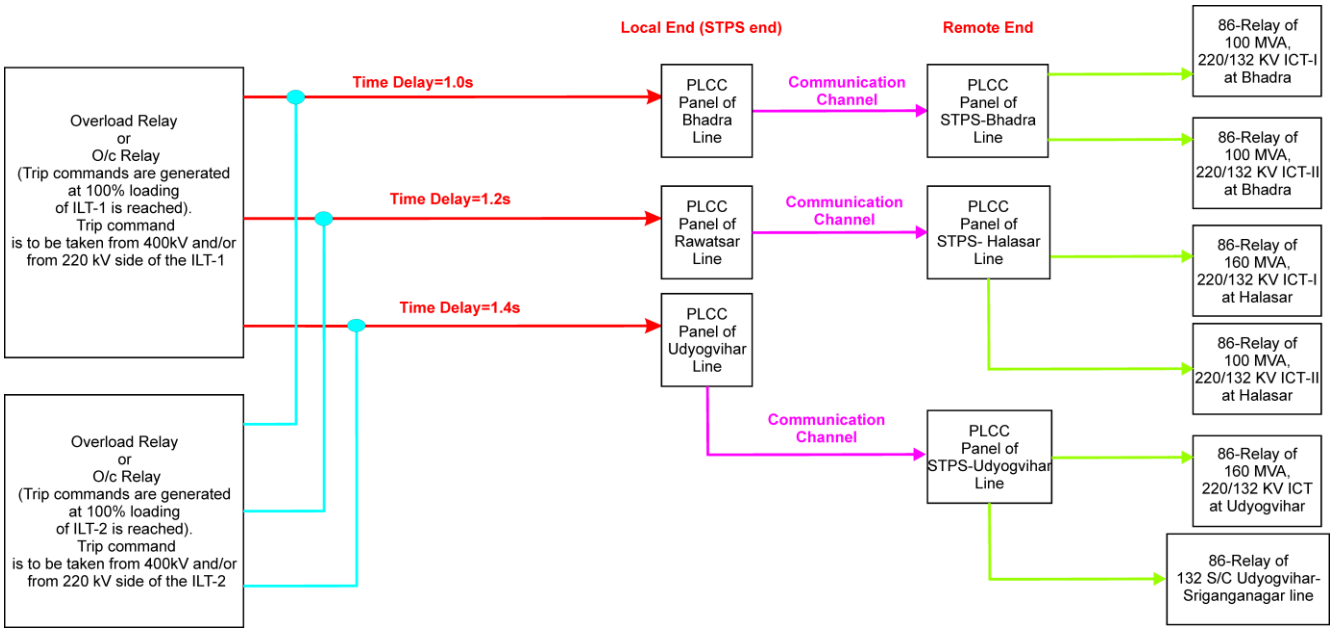


Fig. 2 Schematic diagram for implementation of proposed SPS Logic

- To maintain supply of critical loads connected to all the GSS in the region, tripped 220/132 kV Transformers at the identified 220 kV GSS may be re-connected after applying load shedding on all the GSS in the region in such a quantum to maintain loadings on the 2x315MVA, 400/220 kV ILTs at STPS within permissible limits. Same

procedure will be adopted in the event of tripping of any one of the 315MVA, 400/220 kV ILT at STPS to maintain loadings on the healthy ILT at STPS within permissible limits.

Through Fault Data in 132kV Lines (UPPCL) at HVDC Ballia Terminal Station

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
1	01-8-2023	01:04:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
2	01-8-2023	01:15:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
3	01-8-2023	03:00:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
4	01-8-2023	21:41:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
5	01-8-2023	23:57:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
6	02-8-2023	03:12:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
7	02-8-2023	07:51:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
8	02-8-2023	10:24:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
9	02-8-2023	15:45:01	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
10	02-8-2023	17:49:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
11	02-8-2023	18:00:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
12	02-8-2023	18:48:25	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
13	03-8-2023	08:13:19	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
14	03-8-2023	12:50:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
15	03-8-2023	12:54:51	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
16	03-8-2023	13:09:45	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
17	03-8-2023	13:18:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
18	03-8-2023	13:25:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
19	04-8-2023	00:37:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
20	04-8-2023	11:53:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
21	04-8-2023	17:02:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
22	05-8-2023	06:59:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
23	05-8-2023	07:30:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
24	05-8-2023	07:30:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
25	05-8-2023	10:22:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
26	06-8-2023	06:27:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
27	06-8-2023	09:00:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
28	06-8-2023	12:46:29	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
29	06-8-2023	15:53:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
30	06-8-2023	17:42:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
31	06-8-2023	17:58:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
32	06-8-2023	18:26:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
33	06-8-2023	18:28:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
34	06-8-2023	18:28:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
35	06-8-2023	18:42:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
36	06-8-2023	18:46:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
37	06-8-2023	18:55:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
38	07-8-2023	06:44:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
39	07-8-2023	08:44:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
40	07-8-2023	12:15:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
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42	08-8-2023	19:18:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
43	08-8-2023	19:30:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
44	09-8-2023	00:33:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
45	09-8-2023	03:56:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
46	09-8-2023	04:01:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
47	09-8-2023	04:15:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
48	09-8-2023	07:04:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
49	09-8-2023	15:40:51	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

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52	11-8-2023	09:01:29	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
53	11-8-2023	14:05:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
54	11-8-2023	14:05:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
55	11-8-2023	18:26:37	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
56	11-8-2023	21:15:19	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
57	11-8-2023	21:21:05	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
58	11-8-2023	21:26:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
59	11-8-2023	23:46:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
60	12-8-2023	04:31:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
61	12-8-2023	05:12:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
62	12-8-2023	05:24:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
63	12-8-2023	05:36:29	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
64	12-8-2023	11:51:30	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
65	12-8-2023	12:23:29	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
66	12-8-2023	13:59:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
67	12-8-2023	14:24:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
68	13-8-2023	06:40:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
69	13-8-2023	08:17:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
70	13-8-2023	12:11:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
71	13-8-2023	13:26:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
72	13-8-2023	14:00:45	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
73	14-8-2023	03:14:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
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75	14-8-2023	08:23:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
76	14-8-2023	13:17:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
77	15-8-2023	06:54:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
78	15-8-2023	07:38:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
79	15-8-2023	15:04:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
80	15-8-2023	17:17:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
81	16-8-2023	00:47:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
82	16-8-2023	05:53:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
83	16-8-2023	06:10:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
84	16-8-2023	06:56:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
85	16-8-2023	13:34:12	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
86	16-8-2023	18:44:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
87	16-8-2023	23:24:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
88	17-8-2023	07:01:51	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
89	17-8-2023	07:22:01	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
90	17-8-2023	08:47:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
91	17-8-2023	15:42:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
92	17-8-2023	15:48:30	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
93	17-8-2023	15:52:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
94	17-8-2023	18:19:40	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
95	17-8-2023	19:32:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
96	18-8-2023	04:15:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
97	18-8-2023	13:43:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
98	18-8-2023	14:20:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
99	18-8-2023	14:21:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
100	18-8-2023	14:56:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

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103	19-8-2023	11:29:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
104	19-8-2023	11:38:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
105	19-8-2023	17:51:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
106	19-8-2023	17:51:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
107	20-8-2023	00:54:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
108	20-8-2023	07:51:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
109	20-8-2023	08:38:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
110	20-8-2023	10:22:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
111	20-8-2023	13:59:02	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
112	20-8-2023	15:02:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
113	20-8-2023	16:22:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
114	20-8-2023	18:02:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
115	21-8-2023	08:22:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
116	21-8-2023	13:09:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
117	21-8-2023	17:51:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
118	22-8-2023	00:25:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
119	22-8-2023	01:14:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
120	22-8-2023	01:36:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
121	22-8-2023	07:33:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
122	22-8-2023	13:11:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
123	22-8-2023	13:12:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
124	22-8-2023	13:34:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
125	22-8-2023	13:38:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
126	22-8-2023	13:59:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
127	22-8-2023	14:24:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
128	22-8-2023	15:15:02	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
129	22-8-2023	16:31:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
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131	22-8-2023	17:08:05	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
132	22-8-2023	17:20:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
133	22-8-2023	17:25:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
134	23-8-2023	01:00:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
135	23-8-2023	01:17:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
136	23-8-2023	01:35:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
137	23-8-2023	05:00:37	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
138	23-8-2023	07:42:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
139	23-8-2023	07:56:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
140	23-8-2023	08:06:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
141	23-8-2023	09:39:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
142	23-8-2023	10:50:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
143	23-8-2023	14:39:02	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
144	23-8-2023	15:47:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
145	23-8-2023	16:18:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
146	23-8-2023	18:04:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
147	24-8-2023	13:44:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
148	24-8-2023	14:23:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
149	25-8-2023	11:59:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
150	25-8-2023	17:04:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
151	25-8-2023	17:16:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
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155	26-8-2023	08:51:40	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
156	27-8-2023	06:01:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
157	27-8-2023	17:59:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
158	28-8-2023	05:34:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
159	28-8-2023	07:51:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
160	28-8-2023	16:59:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
161	28-8-2023	19:44:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
162	29-8-2023	09:06:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
163	29-8-2023	19:54:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
164	30-8-2023	06:00:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
165	30-8-2023	07:08:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
166	30-8-2023	08:53:01	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
167	30-8-2023	10:44:37	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
168	30-8-2023	15:48:01	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
169	31-8-2023	05:50:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
170	31-8-2023	06:23:29	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
171	31-8-2023	06:23:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
172	31-8-2023	18:48:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
173	31-8-2023	22:30:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
174	01-9-2023	08:32:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
175	01-9-2023	22:32:25	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
176	03-9-2023	19:05:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
177	03-9-2023	19:14:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
178	03-9-2023	20:02:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
179	03-9-2023	20:10:42	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
180	03-9-2023	22:34:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
181	03-9-2023	23:04:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
182	03-9-2023	23:33:29	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
183	03-9-2023	23:49:15	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
184	03-9-2023	23:51:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
185	04-9-2023	00:53:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
186	04-9-2023	03:33:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
187	04-9-2023	09:57:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
188	04-9-2023	10:31:01	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
189	04-9-2023	11:56:12	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
190	04-9-2023	12:28:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
191	05-9-2023	15:53:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
192	05-9-2023	16:10:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
193	05-9-2023	16:10:45	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
194	05-9-2023	16:12:05	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
195	05-9-2023	16:25:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
196	05-9-2023	16:26:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
197	05-9-2023	20:51:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
198	06-9-2023	02:23:15	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
199	06-9-2023	06:06:51	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
200	06-9-2023	06:12:29	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
201	06-9-2023	06:57:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
202	06-9-2023	07:01:40	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
203	06-9-2023	09:47:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
204	06-9-2023	16:35:43	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
205	06-9-2023	16:36:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
206	06-9-2023	17:15:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
207	06-9-2023	17:26:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
208	06-9-2023	17:33:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
209	06-9-2023	17:36:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
210	06-9-2023	18:41:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
211	06-9-2023	18:47:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
212	06-9-2023	19:18:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
213	07-9-2023	22:20:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
214	07-9-2023	22:47:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
215	08-9-2023	12:11:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
216	08-9-2023	12:11:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
217	09-9-2023	03:05:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
218	09-9-2023	03:05:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
219	09-9-2023	06:05:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
220	09-9-2023	06:05:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
221	09-9-2023	09:51:15	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
222	09-9-2023	09:51:15	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
223	10-9-2023	05:31:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
224	10-9-2023	05:31:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
225	10-9-2023	08:22:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
226	10-9-2023	08:22:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
227	10-9-2023	10:21:19	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
228	10-9-2023	10:21:19	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
229	10-9-2023	14:30:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
230	10-9-2023	14:30:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
231	10-9-2023	16:08:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
232	10-9-2023	16:08:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
233	11-9-2023	06:51:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
234	11-9-2023	06:51:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
235	11-9-2023	07:09:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
236	11-9-2023	07:09:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
237	11-9-2023	12:35:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
238	11-9-2023	12:35:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
239	11-9-2023	16:56:12	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
240	11-9-2023	16:56:12	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
241	12-9-2023	06:08:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
242	12-9-2023	06:08:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
243	12-9-2023	07:16:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
244	12-9-2023	07:16:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
245	12-9-2023	13:45:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
246	12-9-2023	13:46:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
247	12-9-2023	15:03:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
248	13-9-2023	02:44:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
249	13-9-2023	02:44:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
250	13-9-2023	05:37:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
251	13-9-2023	05:37:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
252	13-9-2023	05:40:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
253	13-9-2023	05:40:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
254	13-9-2023	06:59:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
255	13-9-2023	06:59:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
256	13-9-2023	08:40:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
257	13-9-2023	08:40:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
258	10-9-2023	05:31:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
259	10-9-2023	05:31:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
260	10-9-2023	08:22:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
261	10-9-2023	08:22:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
262	10-9-2023	10:21:19	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
263	10-9-2023	10:21:19	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
264	10-9-2023	14:30:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
265	10-9-2023	14:30:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
266	10-9-2023	16:08:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
267	10-9-2023	16:08:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
268	11-9-2023	06:51:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
269	11-9-2023	06:51:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
270	11-9-2023	07:09:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
271	11-9-2023	07:09:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
272	11-9-2023	12:35:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
273	11-9-2023	12:35:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
274	11-9-2023	16:56:12	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
275	11-9-2023	16:56:12	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
276	12-9-2023	06:08:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
277	12-9-2023	06:08:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
278	12-9-2023	07:16:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
279	12-9-2023	07:16:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
280	12-9-2023	13:45:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
281	12-9-2023	13:46:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
282	12-9-2023	15:03:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
283	13-9-2023	02:44:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
284	13-9-2023	02:44:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
285	13-9-2023	05:37:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
286	13-9-2023	05:37:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
287	13-9-2023	05:40:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
288	13-9-2023	05:40:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
289	13-9-2023	06:59:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
290	13-9-2023	06:59:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
291	13-9-2023	08:40:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
292	13-9-2023	08:40:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
293	13-9-2023	14:09:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
294	13-9-2023	14:09:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
295	13-9-2023	17:43:40	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
296	13-9-2023	17:43:40	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
297	14-9-2023	17:00:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
298	14-9-2023	17:44:12	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
299	15-9-2023	09:05:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
300	15-9-2023	10:30:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
301	15-9-2023	12:32:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
302	16-9-2023	01:34:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
303	16-9-2023	01:45:30	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
304	16-9-2023	01:48:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
305	16-9-2023	02:00:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
306	16-9-2023	07:29:40	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
307	16-9-2023	13:12:30	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
308	16-9-2023	16:23:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
309	16-9-2023	16:34:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
310	16-9-2023	17:59:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
311	16-9-2023	18:12:43	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
312	16-9-2023	19:04:01	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
313	16-9-2023	20:04:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
314	16-9-2023	21:41:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
315	16-9-2023	21:46:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
316	16-9-2023	21:47:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
317	17-9-2023	02:42:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
318	17-9-2023	14:03:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
319	17-9-2023	14:09:42	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
320	17-9-2023	15:06:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
321	18-9-2023	06:53:51	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
322	18-9-2023	11:24:32	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
323	18-9-2023	13:43:15	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
324	18-9-2023	16:28:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
325	19-9-2023	02:14:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
326	19-9-2023	05:04:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
327	19-9-2023	07:21:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
328	19-9-2023	07:33:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
329	19-9-2023	08:03:51	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
330	19-9-2023	18:51:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
331	19-9-2023	23:24:32	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
332	20-9-2023	00:15:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
333	20-9-2023	06:54:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
334	20-9-2023	09:25:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
335	20-9-2023	09:29:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
336	20-9-2023	09:30:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
337	20-9-2023	11:59:19	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
338	21-9-2023	09:54:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
339	21-9-2023	12:36:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
340	21-9-2023	15:10:01	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
341	22-9-2023	09:56:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
342	22-9-2023	13:51:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
343	22-9-2023	17:47:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
344	23-9-2023	06:38:02	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
345	23-9-2023	07:27:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
346	23-9-2023	10:36:25	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
347	23-9-2023	11:52:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
348	23-9-2023	13:17:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
349	23-9-2023	13:17:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
350	23-9-2023	13:25:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
351	23-9-2023	13:27:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
352	23-9-2023	13:36:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
353	23-9-2023	17:32:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
354	23-9-2023	20:10:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
355	24-9-2023	02:24:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
356	24-9-2023	08:30:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
357	24-9-2023	14:05:37	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
358	24-9-2023	18:29:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
359	24-9-2023	23:17:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
360	25-9-2023	07:15:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
361	25-9-2023	12:56:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
362	25-9-2023	18:41:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
363	25-9-2023	23:55:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
364	26-9-2023	13:02:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
365	27-9-2023	10:47:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
366	27-9-2023	10:47:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
367	27-9-2023	10:56:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
368	27-9-2023	10:56:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
369	27-9-2023	11:01:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
370	27-9-2023	11:01:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
371	27-9-2023	11:01:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
372	27-9-2023	11:01:38	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
373	27-9-2023	11:12:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
374	27-9-2023	11:12:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
375	27-9-2023	11:14:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
376	27-9-2023	11:14:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
377	27-9-2023	13:52:25	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
378	27-9-2023	13:52:25	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
379	28-9-2023	02:03:53	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
380	28-9-2023	02:03:53	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
381	28-9-2023	02:20:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
382	28-9-2023	02:20:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
383	28-9-2023	05:28:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
384	28-9-2023	05:28:04	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
385	28-9-2023	05:44:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
386	28-9-2023	05:44:13	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
387	28-9-2023	06:27:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
388	28-9-2023	06:27:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
389	28-9-2023	06:35:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
390	28-9-2023	06:35:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
391	28-9-2023	06:46:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
392	28-9-2023	06:46:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
393	28-9-2023	08:04:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
394	28-9-2023	08:04:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
395	28-9-2023	08:54:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
396	28-9-2023	08:54:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
397	28-9-2023	09:00:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
398	28-9-2023	09:00:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
399	28-9-2023	14:25:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
400	28-9-2023	14:25:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
401	28-9-2023	14:56:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
402	28-9-2023	14:56:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
403	29-9-2023	08:26:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
404	29-9-2023	08:26:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
405	29-9-2023	11:01:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
406	29-9-2023	11:01:31	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
407	29-9-2023	13:05:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
408	29-9-2023	13:05:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
409	29-9-2023	14:57:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
410	29-9-2023	14:57:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
411	30-9-2023	02:35:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
412	30-9-2023	02:35:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
413	30-9-2023	02:56:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
414	30-9-2023	02:56:39	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
415	30-9-2023	08:34:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
416	30-9-2023	08:34:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
417	30-9-2023	08:39:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
418	30-9-2023	08:39:16	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
419	30-9-2023	13:39:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
420	30-9-2023	13:39:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
421	30-9-2023	13:53:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
422	30-9-2023	13:53:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
423	30-9-2023	20:26:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
424	30-9-2023	20:26:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
425	30-9-2023	21:24:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
426	30-9-2023	21:24:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
427	30-9-2023	21:30:30	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
428	30-9-2023	21:30:30	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
429	01-10-2023	00:55:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
430	01-10-2023	00:55:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
431	01-10-2023	12:53:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
432	01-10-2023	12:53:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
433	01-10-2023	14:01:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
434	01-10-2023	14:01:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
435	02-10-2023	07:24:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
436	02-10-2023	07:24:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
437	02-10-2023	12:58:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
438	02-10-2023	12:58:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
439	03-10-2023	16:32:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
440	03-10-2023	16:32:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
441	04-10-2023	04:37:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
442	04-10-2023	04:37:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
443	04-10-2023	06:08:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
444	04-10-2023	06:08:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
445	04-10-2023	17:39:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
446	04-10-2023	17:39:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
447	05-10-2023	12:04:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
448	05-10-2023	12:04:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
449	05-10-2023	17:26:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
450	05-10-2023	17:26:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
451	06-10-2023	01:42:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
452	06-10-2023	01:42:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
453	06-10-2023	04:32:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
454	06-10-2023	04:32:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
455	06-10-2023	06:10:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
456	06-10-2023	06:10:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
457	06-10-2023	21:19:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
458	06-10-2023	21:19:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
459	06-10-2023	21:55:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
460	06-10-2023	21:55:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
461	07-10-2023	06:05:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
462	07-10-2023	06:05:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
463	07-10-2023	07:09:42	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
464	07-10-2023	07:09:42	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
465	07-10-2023	13:55:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
466	07-10-2023	13:55:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
467	07-10-2023	17:55:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
468	07-10-2023	17:55:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
469	08-10-2023	05:01:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
470	08-10-2023	05:01:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
471	08-10-2023	14:24:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
472	08-10-2023	14:24:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
473	08-10-2023	20:22:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
474	08-10-2023	20:22:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
475	09-10-2023	01:25:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
476	09-10-2023	01:25:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
477	09-10-2023	04:37:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
478	09-10-2023	04:37:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
479	09-10-2023	04:43:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
480	09-10-2023	04:43:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
481	09-10-2023	07:26:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
482	09-10-2023	07:26:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
483	09-10-2023	07:43:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
484	09-10-2023	07:43:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
485	09-10-2023	07:49:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
486	09-10-2023	07:49:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
487	09-10-2023	10:00:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
488	09-10-2023	10:00:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
489	09-10-2023	10:39:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
490	09-10-2023	10:39:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
491	09-10-2023	10:45:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
492	09-10-2023	10:45:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
493	09-10-2023	23:40:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
494	09-10-2023	23:40:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
495	10-10-2023	00:14:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
496	10-10-2023	00:14:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
497	10-10-2023	05:10:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
498	10-10-2023	05:10:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
499	10-10-2023	08:58:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
500	10-10-2023	08:58:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
501	11-10-2023	06:57:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
502	11-10-2023	06:57:06	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
503	11-10-2023	12:45:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
504	11-10-2023	12:45:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
505	11-10-2023	15:26:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
506	11-10-2023	15:26:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
507	11-10-2023	21:13:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
508	11-10-2023	21:13:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
509	12-10-2023	06:35:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
510	12-10-2023	06:35:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
511	12-10-2023	09:13:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
512	12-10-2023	09:13:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
513	12-10-2023	09:33:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
514	12-10-2023	09:33:28	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
515	12-10-2023	15:52:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
516	12-10-2023	15:52:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
517	12-10-2023	16:16:45	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
518	12-10-2023	16:16:45	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
519	12-10-2023	16:22:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
520	12-10-2023	16:22:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
521	12-10-2023	16:23:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
522	12-10-2023	16:23:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
523	13-10-2023	07:25:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
524	13-10-2023	07:25:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
525	13-10-2023	08:26:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
526	13-10-2023	08:26:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
527	13-10-2023	08:41:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
528	13-10-2023	08:41:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
529	13-10-2023	08:45:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
530	13-10-2023	08:45:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
531	13-10-2023	11:04:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
532	13-10-2023	11:04:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
533	13-10-2023	11:58:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
534	13-10-2023	11:58:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
535	13-10-2023	15:59:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
536	13-10-2023	15:59:14	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
537	14-10-2023	08:18:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
538	14-10-2023	08:18:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
539	14-10-2023	09:48:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
540	14-10-2023	09:48:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
541	14-10-2023	16:03:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
542	14-10-2023	16:03:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
543	14-10-2023	16:05:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
544	14-10-2023	16:05:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
545	15-10-2023	00:44:45	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
546	15-10-2023	00:44:45	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
547	15-10-2023	07:39:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
548	15-10-2023	07:39:10	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
549	15-10-2023	16:05:37	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
550	15-10-2023	16:05:37	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
551	16-10-2023	22:36:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
552	16-10-2023	22:36:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
553	16-10-2023	23:18:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
554	16-10-2023	23:18:34	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
555	17-10-2023	05:29:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
556	17-10-2023	05:29:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
557	17-10-2023	10:10:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
558	17-10-2023	10:10:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
559	19-10-2023	16:55:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
560	19-10-2023	16:55:21	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
561	20-10-2023	07:36:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
562	20-10-2023	07:36:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
563	20-10-2023	08:13:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
564	20-10-2023	08:13:11	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
565	21-10-2023	16:30:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
566	21-10-2023	16:30:56	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
567	22-10-2023	00:16:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
568	22-10-2023	00:16:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
569	22-10-2023	08:06:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
570	22-10-2023	08:06:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
571	23-10-2023	03:06:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
572	23-10-2023	03:06:18	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
573	24-10-2023	08:43:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
574	24-10-2023	08:43:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
575	24-10-2023	13:09:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
576	24-10-2023	13:09:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
577	24-10-2023	16:28:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
578	24-10-2023	16:28:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
579	01-10-2023	00:55:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
580	01-10-2023	00:55:48	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
581	01-10-2023	12:53:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
582	01-10-2023	12:53:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
583	01-10-2023	14:01:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
584	01-10-2023	14:01:22	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
585	02-10-2023	07:24:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
586	02-10-2023	07:24:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
587	02-10-2023	12:58:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
588	02-10-2023	12:58:55	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
589	03-10-2023	16:32:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
590	03-10-2023	16:32:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
591	04-10-2023	04:37:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
592	04-10-2023	04:37:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
593	04-10-2023	06:08:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
594	04-10-2023	06:08:03	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
595	04-10-2023	17:39:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
596	04-10-2023	17:39:58	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
597	05-10-2023	12:04:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
598	05-10-2023	12:04:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
599	05-10-2023	17:26:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
600	05-10-2023	17:26:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
601	06-10-2023	01:42:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
602	06-10-2023	01:42:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
603	06-10-2023	04:32:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
604	06-10-2023	04:32:00	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
605	06-10-2023	06:10:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
606	06-10-2023	06:10:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
607	06-10-2023	21:19:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
608	06-10-2023	21:19:59	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
609	06-10-2023	21:55:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
610	06-10-2023	21:55:41	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
611	07-10-2023	06:05:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
612	07-10-2023	06:05:47	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
613	07-10-2023	07:09:42	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
614	07-10-2023	07:09:42	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
615	07-10-2023	13:55:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
616	07-10-2023	13:55:20	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
617	07-10-2023	17:55:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
618	07-10-2023	17:55:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
619	08-10-2023	05:01:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
620	08-10-2023	05:01:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
621	08-10-2023	14:24:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
622	08-10-2023	14:24:09	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
623	08-10-2023	20:22:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
624	08-10-2023	20:22:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
625	09-10-2023	01:25:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
626	09-10-2023	01:25:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
627	09-10-2023	04:37:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
628	09-10-2023	04:37:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
629	09-10-2023	04:43:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
630	09-10-2023	04:43:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
631	09-10-2023	07:26:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
632	09-10-2023	07:26:57	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
633	09-10-2023	07:43:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
634	09-10-2023	07:43:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
635	09-10-2023	07:49:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
636	09-10-2023	07:49:44	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
637	09-10-2023	10:00:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
638	09-10-2023	10:00:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
639	09-10-2023	10:39:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
640	09-10-2023	10:39:08	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
641	09-10-2023	10:45:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
642	09-10-2023	10:45:46	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
643	09-10-2023	23:40:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
644	09-10-2023	23:40:17	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
645	10-10-2023	00:14:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
646	10-10-2023	00:14:49	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
647	10-10-2023	05:10:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
648	10-10-2023	05:10:36	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
649	10-10-2023	08:58:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
650	10-10-2023	08:58:52	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
651	27-10-2023	05:43:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
652	27-10-2023	05:43:07	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
653	27-10-2023	12:09:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
654	27-10-2023	12:09:27	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
655	28-10-2023	02:15:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
656	28-10-2023	02:15:26	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
657	28-10-2023	08:15:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
658	28-10-2023	08:15:35	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
659	28-10-2023	09:10:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
660	28-10-2023	09:10:50	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
661	28-10-2023	09:16:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

Sl. No.	Date	Time	Locat	Volta	Bay/D	Devic	Information Text	Value
662	28-10-2023	09:16:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
663	28-10-2023	09:36:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
664	28-10-2023	09:36:54	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
665	28-10-2023	22:09:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
666	28-10-2023	22:09:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
667	29-10-2023	19:27:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
668	29-10-2023	19:27:23	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
669	30-10-2023	08:04:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
670	30-10-2023	08:04:33	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
671	30-10-2023	16:54:02	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
672	30-10-2023	16:54:02	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE
673	31-10-2023	08:56:24	KIOS	132	BAY 1	7SJ62	Total.Pickup	RAISE

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprises)

REF:NR-3/RTAMC/TL/Tripping

Dt.07.12.2023

To,

The Director (Operation)
11th Floor, Shakti Bhawan
Lucknow

Sub: Frequent faults in 132 KV S/C Sikandarpur (UPPTCL) Transmission Line & interruption in 33 KV UPPCL feeder dedicated for Auxiliary supply at POWERGRID HVDC & HVAC Ballia Sub-Station.

Sir,

It has been observed that 132 KV S/C Sikanderpur Transmission Line (owned by UPPTCL) is sensing frequent over current fault due to regular line faults. There are frequent faults in this line which are being fed by 200 MVA,400/132/33 KV Transformer at Ballia(PG) end. It also causes frequent voltage dip in auxiliary supply taken from this ICT. Detail of Through faults in 132kV UPPCL Lines in last 3 months is attached at Annexure-I (Total 673 times relay detected through faults).

The another source of auxiliary supply is the dedicated 33 KV feeder from 132/33 KV Simri Jamalpur UPPCL Sub-Station and frequent tripping in 33 KV feeder has also been noticed. This feeder is not reliable and sometimes fails 2-3 times in a day and outage duration in most of the cases is generally more than 12 Hrs. Due to frequent breakdowns of UPPCL supply, the Auxiliary Power supply changeover occurs multiple times and creates reliability issue. Details of Tripping in 33kV UPPCL Feeder in last 5 months(18no) are attached at Annexure-II. Due to presence of HVDC and HVAC system in POWERGRID Ballia premises, the availability of uninterrupted power supply is very much critical for smooth operation of Ballia station.

The matter is of deep concern and was discussed in 213th OCC meeting. Various correspondence letters are attached for reference.

It is pertinent to mention that 765/400/132 KV AC and 500 KV,2500 MW HVDC Ballia is a very important substation of Norther POWERGRID and any disturbance due to auxiliary power supply failure may lead to serious disturbance in entire Northern Grid.

It is therefore requested that kindly review and resolve the frequent fault issue in 132 KV Sikandarpur line and frequent tripping of 33 KV UPPCL feeder connected to Ballia Sub-Station pl.

07.12.23

(PANKAJ SHARMA)

Chief General Manager-AM

Copy for kind information to:

1. Executive Director, POWERGRID, NR-3, Lucknow
2. Director, UPSLDC, Vibhuti khand-II, Gomti Nagra, Lucknow
3. Member Secretary, NRPC , New Delhi.

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

765/400kV HVAC / ± 500 KV HVDC Substation, Ibrahimpatti, Belthara Road, Ballia, UP Pin- 221716
Ph: 05491-251611,251644 E-mail: balliahvdc@powergrid.co.in ballia765kv@powergrid.co.in,

Ref. No.: NR3/BAL/HVDC/33 kV/UPPCL/01 **Date**: 01.12.2023

URGENT

To,

Executive Engineer,
EDD-I, UPPCL
Ballia

Sub: Frequent interruptions in 33 kV UPPCL Feeder.

Dear Sir,

As you may be aware that POWERGRID HVDC Ballia Substation is sourcing one of the 33 kV supply from 132/33 kV Simri Jamalpur UPPPCL Substation through one of the 33 kV dedicated feeders. This power supply is being used to feed power to HVDC auxiliary system such as thyristor cooling water pump, tap changer of converter transformer etc. The successful operation of any HVDC system is totally dependent on successful operation of auxiliary systems which in turn require uninterrupted auxiliary power supply.

However, POWERGRID Ballia Substation is facing frequent interruptions on 33 kV dedicated UPPCL feeder which is emanating from your substation (Details of previous trippings are enclosed as Annexure-I). Due to the presence of HVDC system in the POWERGRID Ballia premises, the availability of uninterrupted power supply is very much critical for successful working of 2500 MW Ballia-Bhiwadi HVDC system.

It is therefore requested that kindly review & resolve the frequent interruptions in 33 kV UPPCL feeder. Also, details of rectification as carried out may also be forwardec to us.

The matter must be treated as most urgent.

Thanking you.

Yours truly,

01-12-23

(Devanand Kushwaha)

Sr. General Manager

Encl.: A/a

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

कार्यालय/साइट: 765/400 /132 के.वी. एचवीएसी & ±500 के.वी. एचवीडीसी बलिया उपकेंद्र, इब्राहिमपट्टी, बलिया (उ.प्र.)-221716
Office/Site: 765/400/132kV HVAC & ±500 kV HVDC Ballia Substation, Ibrahimpatti, Ballia (U.P.)- 221716

Ref. No.: NR3/BAL/HVDC/132 kV/UPPCL **Date**: 01.09.2022

URGENT

To,

Executive Engineer,
ETD, UPPTCL
Ballia (UP)

Sub: Frequent Fault Current being fed through 132 kV S/C Sikanderpur (UPPCL) Transmission Line from our 200 MVA, 400/132/33 kV Transformer installed at POWERGRID Ibrahimpatti, Ballia Substation.

Dear Sir,

It is to intimate you that the 132 kV S/C Sikanderpur Transmission Line (Owned by UPPCL) is being sensing frequent over current faults. The matter is of deep concern that per day many faults are being occurred in the line. We have analyzed fault data from 1st May 2022 to 18th Aug 2022 and found total 368 faults have been occurred. Month wise fault data is given below:

1. May – 74 faults
2. June – 70 faults
3. July – 106 faults
4. Upto 18th August – 118 faults

Since, the fault currents are being fed from our 200 MVA, 400/132/33 kV Transformer, therefore life expectancy of the transformer is being compromised. This also causes, frequent voltage dip in Auxiliary supply taken from the 200MVA Transformer. HVDC Auxiliaries system requires uninterrupted stable supply voltage for its successful operation. However, due to frequent voltage sag/fault current at 200 MVA, 400/132/33 kV Transformer level, several tripping of HVDC happened in past. The same have been viewed very seriously by us as well as higher level of POWERGRID. Details of previous events for May to August' 2022 raised in SCADA system of 132 kV S/C Sikanderpur line are enclosed herewith for your reference.

01/09/2022

Contd. ..P/2

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

कार्यालय/साइट: 765/400 /132 के.वी. एचवीएसी & ±500 के.वी. एचवीडीसी बलिया उपकेंद्र, इब्राहिमपट्टी, बलिया (उ.प्र.)-221716
Office/Site: 765/400/132kV HVAC & ±500 kV HVDC Ballia Substation, Ibrahimpatti, Ballia (U.P.)- 221716

Cond.. from P/1

As per analysis of DR data, it is evaluated that majority of faults are seems to be through fault nature type. Therefore, it is requested to kindly analyze your downstream network & take suitable actions to resolve the above issue at the earliest. Details of rectification as carried out may also be forwarded to us.

It may also be noted that if any vital equipment of our substation got damaged due to such frequent fault currents, UPPCL shall be solely responsible for any outage and equipment damage at our substation. Also, in near future, POWERGRID will raise the matter with CERC to recover any availability/equipment loss suffered by POWERGRID due to the above reasons.

The matter must be treated as most urgent.

Thanking you.

Yours truly,

01/09/2022

(T.P.Verma)

DGM (Substation)
टी० पी० वर्मा/T. P. VERMA
उप महाप्रबंधक/Dy. General Manager
पावर ग्रिड कॉर्पोरेशन ऑफ़ इंडिया लिमिटेड
POWER GRID CORPORATION OF INDIA LIMITED
(भारत सरकार का उद्यम A Govt. of India Enterprise)
765/400/132kV/±500kV HVDC Ballia SS
Ibrahimpatti, Ballia-221716 (U.P.)

Encl.: A/a

CC: 1. CGM (AM), RHQ, NR-3, Lucknow for kind information please.

2. Sr. GM (AM), RHQ, NR-3, Lucknow for kind information please.

3. GM Ballia Substation for kind information please.

ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
भारत सरकार का उद्यम
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर क्षेत्रीय भार प्रेषण केन्द्र / Northern Regional Load Despatch Centre
कार्यालय : 18-ए, शहीद जीत सिंह सनसनवाल मार्ग, कटवारिया सराय, नई दिल्ली-110016
Office : 18-A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi-110016
CIN : U40105DL2009GOI188682, Website : www.nrldc.in, E-mail : nrldc@grid-india.in, Tel.: 011 26519406, 26523869, Fax: 011 26852747

संदर्भ संख्या: NRLDC\TS-11\674-675 दिनांक: 29 दिसंबर 2023

सेवा में,

1.Chief Engineer, UPPTCL
11th Floor Shakti Bhawan Extension, Lucknow, 14-Ashok Marg, Lucknow-226001

2.Chief Engineer, UP SLDC
Phase II, Vibhuti Khand, Lucknow - 226010

विषय: Requirement of special attention for expediting revival of 765 KV Anpara C- Unnao line taken under shutdown for height raising of 765 KV Anpara C- Unnao line line and A/R testing of Main Bay-4 protection relays at 765 KV Unnao.

महोदय,

This is with reference to the shutdown of 765 KV Anpara C TPS(LAN)- Unnao line for height raising of 765 KV Anpara C TPS(LAN)- Unnao line and A/R testing of Main Bay-4 protection relays at 765 KV Unnao. The shutdown of the transmission line was approved in OCC 212 from 15.11.2023 to 05.12.2023 (21 days). However, the shutdown was availed from 23.11.2023 and the transmission line has not yet been revived. The transmission line has been under outage for the last 36 days, an overshoot of 15 days from the approved outage timeline. It has also been requested telephonically many a times to restore the line at the earliest in view of the upcoming winter season with expected see rise in demand as well as foggy weather.

As you are aware that Northern Region has entered its peak Winter season and transmission line trippings due to fog particularly in Night and early Morning hours have been reported in the Region. Recently, 765 KV Obra C TPS-Unnao (UP) line tripped at 06.40 hrs on 27.12.2023 on phase to earth fault during foggy weather. Further, IMD has forecasted dense to very dense fog at isolated places in Northern Region and Red Alert has been issued by IMD for East and West UP for 29.12.2023 and similar weather condition is likely to persist in the coming days.

Hence, any further slippage from the committed timeline of revival of the EHV Transmission line may cause bottleneck in the safe evacuation of generation of the Anpara-Obra complex and threatening the grid security. Further, generation outages or backing down of generation of your control area in case of contingency due to outage of transmission lines will lead to overdrawl and shortages in the peak Winter demand season.

It is requested to advice the concerned officials to expedite the restoration of 765 KV Anpara-Unnao line for safe evacuation of generation and reliable grid operation.

सादर धन्यवाद

(आलोक कुमार)
महाप्रबंधक (प्रणाली संचालन)
उत्तरी क्षेत्र भार प्रेषण केंद्र, नई दिल्ली

Copy: MS, NRPC
for kind information pl. ED, NRLDC
CGM (SO), NRLDC
ED NLDC

National Load Despatch Centre
Import Capability of Punjab for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	9500	500	9000	5497	3503		https://www.punjabsldc.org/ATC_TTC.aspx
Limiting Constraints		N-1 contigency of 400/220KV ICTs at Rajpura, Ludhiana, Jalandhar Loading close to N-1 contingency limits of 400/220kV Patran, Malerkotla, Moga and Patiala ICTs 220 kV underlying network at Jalandhar, Ludhiana and Amritsar						

National Load Despatch Centre
Import Capability of Uttar Pradesh for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	16100	600	15500	9779	5721		https://www.upsldc.org/documents/20182/0/ttc_atc_24-11-16/4c79978e-35f2-4aef-8c0f-7f30d878dbde
Limiting Constraints	N-1 contingency of 400/220kV Azamgarh, Allahabad(PG), Gorakhpur (UP), Sarnath, Lucknow (PG) ICTs							

National Load Despatch Centre

Import Capability of Haryana for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	9100	250	8850	5143	3707		https://hvpn.org.in/#/atcttc
Limiting Constraints	N-1 contingency of 400/220kV ICTs at Deepalpur and Panipat(BBMB)							

National Load Despatch Centre
Import Capability of Rajasthan for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	7600	600	7000	5689	1311		https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
Limiting Constraints		N-1 contingency of 400/220kV Chittorgarh, Jodhpur, Bikaner, Ajmer, Merta, Hindaun and Bhinmal ICTs						

National Load Despatch Centre
Import Capability of Delhi for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	7300	300	7000	4810	2190		https://www.delhisldc.org/resources/atcttcreport.pdf
Limiting Constraints	N-1 contingency of 400/220kV Mundka, HarshVihar and Bawana (bus-split) ICTs.							

National Load Despatch Centre
Import Capability of HP for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	1680	100	1580	1130	450		https://hpsldc.com/mrm_category/ttc-atc-report/
Limiting Constraints		High loading of 220kV Hamirpur-Hamirpur D/C. Overloading of 2*200MVA Kunihar transformers						

National Load Despatch Centre
Import Capability of Uttarakhand for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	1700	100	1600	1402	198		https://uksldc.in/ttc-atc
Limiting Constraints		N-1 contingency of 400/220kV Kashipur ICTs. High loading of 220kV Roorkee-Roorkee and 220kV CBGanj-Pantnagar lines						

National Load Despatch Centre
Import Capability of J&K for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	2900	100	2800	1977	823		
Limiting Constraints		N-1 contigency of 400/220KV ICTs at Amargarh 220 kV underlying network at Amargarh, Wagoora						

National Load Despatch Centre
Import Capability of Chandigarh for February 2024

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st February 2024 to 29th February 2024	00-24	400	20	380	342	38		
Limiting Constraints		N-1 contigency of 220kV Nallagarh-Kishengarh						

Sr No	Element Name	Outage Date	Outage Time	Reason
1	220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-2	07-Dec-23	03:05	Phase to Ground Fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		26-Dec-23	06:40	Phase to earth fault B-N. As per PMU, B-N fault occured, no auto-reclosing is observed.
		31-Dec-23	03:22	Phase to earth fault B-N. As per PMU, B-N fault occurred and delayed clearance of 440ms with no auto-reclosing observed. As per DR, carrier fail is observed at Baghpat (PG) end.
2	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2	06-Dec-23	00:01	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		13-Dec-23	03:12	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		17-Dec-23	21:47	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		20-Dec-23	06:05	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		23-Dec-23	23:20	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
3	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1	14-Dec-23	04:01	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		16-Dec-23	05:46	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		18-Dec-23	03:21	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		18-Dec-23	05:07	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		21-Dec-23	05:12	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
4	220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1	06-Dec-23	05:34	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		08-Dec-23	04:52	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		10-Dec-23	05:25	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		17-Dec-23	05:55	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		20-Dec-23	03:10	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		23-Dec-23	00:45	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		23-Dec-23	04:40	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
5	220 KV Saharanpur(PG)-Shamli(UP) (UP) Ckt-1	06-Dec-23	06:18	Phase to earth fault B-N. As per PMU, B-N fault occured, no auto-reclosing is observed.
		27-Dec-23	02:15	Phase to earth fault B-N. As per PMU, B-N fault occured, no auto-reclosing is observed.
		30-Dec-23	06:06	Phase to earth fault B-N. As per PMU, B-N fault occured, no auto-reclosing is observed.
6	400 KV Suratgarh(RVUN)-Ratangarh(RS) (RS) Ckt-1	24-Dec-23	04:59	Phase to earth fault Y-N. As per PMU & DR, Y-N fault occured, no auto-reclosing is observed.
		28-Dec-23	03:25	Phase to earth fault B-N. As per PMU, B-N fault occured, no auto-reclosing is observed.
		31-Dec-23	00:46	Phase to earth fault B-N. As per PMU & DR, B-N fault occured, no auto-reclosing is observed.

Grid Event summary for December 2023

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Duration (hh:mm)	Event (As reported)	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)
					Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
1	GI-2	1) 400/33 kV 150 MVA ICT 7 at Avaada Pooling SL_BKN_PG (AEPL)	Rajasthan	Avaada Pooling (AEPL)	3-Dec-23	13:31	4-Dec-23	00:08	10:37	i) Total MW generation of Avaada Sunce, Avaada RJHN and Avaada Sustainable are pooled at 400kV Avaada pooling and total generation is evacuated through 400 KV Avaada Pooling SL_BKN_PG (AEPL)-Bikaner(PG) (AEPL) Ckt. During antecedent condition, 400/33 kV 150 MVA ICT 7 at Avaada Pooling SL_BKN_PG (AEPL) was carrying approx. 106MW. ii) As reported, at 13:31hrs, 400/33 kV 150 MVA ICT 7 at Avaada Pooling SL_BKN_PG (AEPL) tripped due to main LV Feeder-352 LA failure. iii) As per PMU at Avaada(IP), Y-N phase to earth fault with fault clearance time of 80ms is observed in the system. iv) As per PMU, generation loss of approx. 106MW at Avaada Pooling(IP) is observed.	0	0	106	0	0.265	0.000	39981	46164	80
2	GD-1	1) 400 KV Dulhasti(NH)-Kishenpur(PG) (PG) Ckt-1 2) 130MW Unit-2 at Dulhasti HEP	J&K	NHPC, POWERGRID	10-Dec-23	15:57	10-Dec-23	23:00	07:03	i) During antecedent condition, only 130MW Unit-2 at Dulhasti HEP was running (generating approx. 127MW) and power was evacuating through 400kV Dulhasti-Kishenpur ckt-1 only. 400kV Dulhasti-Kishenpur ckt-2 was already under planned outage due to stringing work. ii) As reported, at 15:57hrs, 400kV Dulhasti-Kishenpur ckt-1 tripped on Y-N phase to earth fault. At the same time, 130MW Unit-2 at Dulhasti HEP also tripped due to loss of evacuation path. iii) As per PMU at Kishenpur (PG), Y-N phase to earth fault with unsuccessful A/R operation is observed. Fault was of permanent nature and fault current was ~4KA. iv) As per SCADA, generation loss of approx. 127MW is observed at Dulhasti HEP.	0	0	127	0	0.347	0.000	36626	42183	80
3	GD-1	1) 400/220 kV 315 MVA ICT -1 at Hindaun(RS) 2) 400/220 kV 315 MVA ICT -2 at Hindaun(RS)	Rajasthan	RVPNL	13-Dec-23	13:03	13-Dec-23	13:35	00:32	i) During antecedent condition, MVA loadings of 400/220 kV 315 MVA ICT-1 & 2 at Hindaun(RS) were 227 and 243 MVA respectively. ii) At 13:03 hrs, 220kV Hindaun220-Sikrai(Dausa)(RS) ckt (carrying ~78MW) tripped which further resulted into overloading of 220kV Hindaun400-Hindaun220(RS) ckt (carrying ~95MW) and 400/220kV 315MVA ICTs at Hindaun(RS). Subsequently, 400/220kV 315MVA ICT-1&2 at Hindaun tripped on overcurrent protection operation. iii) As per PMU, no fault is observed in the system. iv) As per SCADA, load loss of approx. 550 MW is observed in Rajasthan control area.	0	0.293	0	550	0.000	1.023	44848	53773	NA
4	GD-1	1) 400 KV Bikaner-Bhadla (RS) Ckt-1 2) 220/33kV 100MVA ICT-1 at Rising Sun(RSDCL4) 3) 220/33kV 100MVA ICT-2 at Rising Sun(RSDCL4) 4) 220/33kV 100MVA ICT-3 at Rising Sun(RSDCL4) 5) 400 KV Bikaner-Bhadla (RS) Ckt-2	Rajasthan	RVPNL, RSDCL4	17-Dec-23	13:01	17-Dec-23	23:22	10:21	i) During antecedent condition, 220/33kV 100MVA ICT-1, 2 & 3 at Rising Sun(RSDCL4) were carrying 57MW, 57MW and 53MW respectively. ii) As reported, at 13:01hrs, 400 KV Bikaner-Bhadla (RS) Ckt-1 tripped on Y-B phase to phase fault with fault distance of 70.52km from Bhadla(RS) end, conductor found broken between tower location no. 243-244. As per DR at Bikaner(RS) end, fault was in zone -1, fault current was 4.53kA and 5.46kA on Y & B phase respectively and fault clearing time was 50ms. iii) At the same time, 220/33kV 100MVA ICT-1 & 3 at Rising Sun(RSDCL4) tripped due to relay mal-operation (exact reason yet to be shared). Due to this tripping, 220/33kV 100MVA ICT-2 at Rising Sun(RSDCL4) also tripped due to over-loading. iv) Again, at 13:14hrs, 400 KV Bikaner-Bhadla (RS) Ckt-2 tripped on Y-B phase to phase fault with fault distance of 30.61km from Bhadla(RS) end, conductor found broken between tower location no. 107-108. As per DR at Bikaner(RS) end, fault was in zone -1, fault current was 3.14kA and 4.36kA on Y & B phase respectively and fault clearing time was 40ms. v) As per PMU at Bhadla(PG), Y-B phase to phase fault is observed with fault clearing time of 80ms. vi) As per SCADA, generation loss of approx. 1600 MW is observed in total NR Solar generation which was recovered within 3 minutes.	0	0	1600	0	3.285	0.000	48712	55964	80
5	GI-2	1) 765 KV Hapur-Meerut_PMSTL (UP) Ckt 2) 765/400 kV 1500 MVA ICT 2 at Meerut_PMSTL (UP) 3) 765 KV Meerut_PMSTL (UP) - Bus 1	Uttar Pradesh	UPPTCL	24-Dec-23	05:36	24-Dec-23	14:06	08:30	i) During antecedent condition, 765/400 kV 1500 MVA ICT 1 & 2 at Meerut_PMSTL (UP) were carrying approx. 120MW each. ii) As reported, at 05:36hrs, 765 KV Hapur-Meerut_PMSTL (UP) Ckt tripped on R-N phase to earth fault with fault location of 9.104km from Hapur end due to OPGW conductor broken at fault location. iii) As per DR at Hapur end, zone-1 distance protection operated and fault current was 6.194kA from Hapur end. As per DR at Meerut end, zone-1 distance protection operated (unsuccessful A/R), LBB operated and fault current was 5.632kA from Meerut end. iv) Due to issue in opening of R-phase CB at Meerut end of 765 KV Hapur-Meerut_PMSTL (UP) Ckt, LBB operated at Meerut end which led to tripping of 765/400 kV 1500 MVA ICT 2 at Meerut_PMSTL (UP) also and 765 KV Meerut_PMSTL (UP) - Bus 1 became dead. v) As per PMU at Meerut(PG), multiple R-N phase to earth fault with fault clearance time of 80ms and 280ms are observed. vi) As per SCADA, no change in demand is observed in UP control area.	0	0	0	0	0.000	0.000	33070	42165	80
6	GI-2	1) 400 KV Jhatikara(PG)-Mundka(DV) (DTL) Ckt-2 2) 400 KV Bawana-Mundka (DV) Ckt-1 3) 400 KV Bawana-Mundka (DV) Ckt-2	Delhi	PGCIL, DTL	24-Dec-23	11:42	24-Dec-23	15:44	04:02	i) As reported, at 11:42 Hrs, 400 KV Jhatikara(PG)-Mundka(DV) (DTL) Ckt-2 tripped on Y-B-N double phase to ground fault with fault current of 19.062kA and fault location of 4.202km from Jhatikara end. ii) As per DR at Mundka end, zone-1 distance protection operated, fault current was 13.14kA and 14.28kA in Y and B phase respectively and fault clearing time was approx. 40ms. iii) During the same time, 400 KV Bawana-Mundka (DV) Ckt-1 & 2 also tripped from Mundka end only. iv) As per SCADA, sudden dip in solar generation of approx. 400MW is observed which revived within 2 minutes. v) As per PMU, sudden dip in generation is observed in some RE plants, e.g., AHEJ2L (~70MW), NTPC Devikot (~110MW), RSWPL (~140MW) and RSUPL (~70MW). vi) As per PMU, Y-B-N double phase to ground fault with fault clearing time of 120ms is observed. vii) As per SCADA, no change in demand is observed in Delhi control area.	0	0	400	0	0.823	0.000	48608	57489	120
7	GD-1	1) 400kV Ramgarh(RS)-Bhadla(RS) Ckt-1 2) 400kV Ramgarh(RS)-Bhadla(RS) Ckt-2 3) 400kV Ramgarh(RS)-Akal(RS) Ckt-1 4) 400kV Ramgarh(RS)-Akal(RS) Ckt-2	Rajasthan	RVPNL	31-Dec-23	09:29	31-Dec-23	13:15	03:46	i) During antecedent condition, MVA loadings of 400/220 kV 500 MVA ICT- 2 & 3 at Ramgarh(RS) were 188 and 191 MVA respectively. 400/220 kV 500 MVA ICT- 1 at Ramgarh(RS) was not under working condition. ii) As reported, at 09:29 hrs, 400kV Ramgarh(RS)-Bhadla(RS) Ckt-1 & 2 and 400kV Ramgarh(RS)-Akal(RS) Ckt-1 & 2 tripped on R-Y phase to phase fault. iii) Due to tripping of all the elements, 400/220kV Ramgarh(RS) S/s became dead. iv) As per PMU, Y-B phase to phase fault with delayed fault clearance time of 520ms is observed. v) As per SCADA, change in demand of approx. 310 MW is observed in Rajasthan control area. vi) As per SCADA, loss of wind generation of approx. 315 MW is observed in Rajasthan control area.	0	1.167	315	310	0.734	0.546	42911	56822	520
8	GD-1	1) 220kV Bhawad(RS)-Bhopalgarh(RS) Ckt-1 2) 220kV Bhawad(RS)-Bhopalgarh(RS) Ckt-2 3) 220kV Bhawad(RS)-Jodhpur(RS) Ckt-1 4) 220kV Bhawad(RS)-Jodhpur(RS) Ckt-2 5) 220kV Bhawad(RS)-Baithwasla(RS) Ckt-1 6) 220kV Bhawad(RS)-Baithwasla(RS) Ckt-2 7) 220/132kV 100MVA ICT-1 at Bhawad(RS) 8) 220/132kV 160MVA ICT-2 at Bhawad(RS) 9) 400/220kV 315MVA ICT-1 at Merta(RS) 10) 400/220kV 315MVA ICT-2 at Merta(RS) 11) 220/132kV 100MVA ICT at Jodhpur(RS) 12) 400/220kV 315MVA ICT-1 at Kankani(RS) 13) 400/220kV 500MVA ICT-2 at Kankani(RS)	Rajasthan	RVPNL	31-Dec-23	12:35	31-Dec-23	13:38	01:03	i) As reported, at 12:35 hrs, B-phase conductor of main bus isolator of 220kV Bhawad(RS)-Bhopalgarh(RS) Ckt-1 snapped which led to bus bar protection operation at 220kV Bhawad(RS). All the elements connected to 220kV Bus-1 & 2 at Bhawad(RS) tripped and 220/132kV Bhawad(RS) S/s became dead. ii) Due to shifting of total load of Bhopalgarh on 400/220kV Merta(RS), 400/220kV 315MVA ICT-1 & 2 at Merta(RS) tripped at the same time due to over-loading. iii) As 400/220kV Kankani(RS) and Jodhpur(RS) started to cater the nearby load of Bhopalgarh area, 400/220kV 315MVA ICT-1 & 500MVA ICT-2 at Kankani(RS) and 220/132kV 100MVA ICT at Jodhpur(RS) also tripped during the same time due to over-loading. iv) As per SCADA SOE, 220kV Nagaur(RS)-Barsingsar(RS) Ckt, 220kV Merta(RS)-Jethana(RS) Ckt and 400kV Merta(RS)-Kankani(RS) Ckt also tripped during the same time (Exact reason of the same yet to be shared). v) As per PMU, no fault is observed in the system. vi) As per SCADA, load loss of approx. 1560 MW is observed in Rajasthan control area.	0	1.638	0	1560	0.000	2.612	49584	59724	NA

Non-complaint RE plants during 17th December'2023 Grid event vis-à-vis CEA Technical Standards for Connectivity to The Grid

S.No	Connected at	Name of SPPD/Generator	Installed Capacity (MW)	Inverter/ WTG Make	PMU Code	Voltage (during fault at POI (PU) (13:01:04.360)	Highest Voltage recorded at POI (PU)	Active Power (MW)			Reactive power (MVAR			HVRT/LVRT Compliance	Reactive Power Support during fault condition (partially, fully, non-complaint)
								Before at (13:01:04.240)	After One second (13:02:04.360)	Percentage Recovered immediately after fault	Before at (13:01:04.320)	At fault Instant (13:01:04.360)	Immediately after fault clearance (13:01:04.400)		
1	Bhadla(PG)	ACME Chittorgarh Solar Energy Pvt. Ltd (ACME)	250	TBEA	ACME_IP	0.91	1.02	224	201	89%	4	0	-21	LVRT-Non compliant	opposite response
2		Clean Solar Power (Jodhpur) Pvt. Ltd.	250	SUNGROW	CSPJP_IP	0.9	1.03	237	194	82%	2	-2	-7	LVRT-Non compliant	opposite response
3	Bhadla2(PG)	ABC Renewable Energy (RJ-01) Private Limited (ABCRL)	300	TBEA	ABCRL_IP	0.94	1.03	302	244	81%	2	-24	-41	LVRT-Non compliant	opposite response
4	Bikaner(PG)	Azure Power	600	SUNGROW	AZR43_IP	0.97	1.03	592	490	83%	-12	-28	-29	LVRT-Non compliant	opposite response
5		Renew Surya Ravi Private Limited Bikaner (RSRPL)	300	SUNGROW	RSRPL_IP	0.97	1.03	259	191	74%	10	5	12	LVRT-Non compliant	opposite response
6	Fatehgarh2(PG)	Adani Hybrid Energy Jaisalmer Two Limited (AHEJ2)	**300**	SUNGROW	AHEJ2_IP	0.92	1.04	246	90	36%	1	0	0	LVRT-Non compliant	opposite response
7		Adani Hybrid Energy Jaisalmer Two Limited (AHEJ2): Wind	**75**	Suzlon WTG											
8		Adani Solar Energy Jaisalmer one Limited: Solar	**209**	SUNGROW	ASJ1S_IP (ckt I)	0.919	1.068	219	141	65%	4	-6	-11	LVRT-Non compliant	opposite response
9			**212.5**	KEHUA	ASJ1S_IP (ckt II)	0.921	1.069	218	140	64%	9	-1	-8	LVRT-Non compliant	opposite response
10		ReNew Solar Urja Private Limited(RSUPL)	**300**	SUNGROW/ TBEA	RSUPL_IP	0.912	1.049	296	31	10%	7	-2	-5	LVRT-Non compliant	opposite response
11		ReNew Sun Waves Private Limited, Fatehgarh-II (RNEWJ)	**300**	SUNGROW	RNEWJ_IP	0.911	1.048	298	31	10%	7	-18	-23	LVRT-Non compliant	opposite response

Date: 12.10.22

Format for data/Information/Settings required from RE plants

1. SOE of Plant showing tripping (if any) of 220kV lines, 220/33kV ICTs, 33kV feeders, 33/0.69 kV or 33/0.63 kV IDTs, Inverters/WTG.
2. **Inverters/WTG logs showing any alarm of LVRT/HVRT/Tripping.**
3. **Present implemented settings (Downloaded settings) from inverters for LVRT, HVRT, Active power Ramp up rate, Over & Under voltage and Over & Under frequency.**
4. **Present implemented settings (Downloaded settings from PPC), firmware version of PPC.**
5. Reason for significant reduction in active power before tripping of any evacuating elements.
6. Reason for slow active power ramp up rate.
7. Reason for not injecting MVAR during the fault and not absorbing MVAR during high voltage.
8. Active Power (MW) of Inverters terminal with resolution of atleast 50ms.
9. Reactive Power (MVAR) of Inverters terminals with resolution of atleast 50ms.
10. RMS voltage and current at Inverter/WTG terminal with resolution of atleast 50ms.
11. Inverter inherent characteristic during HVRT (Whether it maintain its active power (MW) or reduces MW during HVRT?).

** All logs/data should be properly time synced.*

1. Format for Important settings of PPC that should be readily available all the time for monitoring Plant performance;

Important Parameter of PPC		
Description	**Value**	**Unit**
Active Power control mode		Enabled/Disabled
Maximum Active power command		MW
Active Power ramp rate		%/sec
Voltage control mode		Enabled/Disabled
PPC Reference voltage		kV (or PU)
Minimum Reactive Power command		MVAR
Maximum Reactive power command		MVAR
Voltage dead band		%
Voltage droop		%
Over Voltage limit		kV (or PU)
Under Voltage limit		kV (or PU)
Power Factor limit		
PPC Reference point		Point from which PPC is taking reference Voltage(kV), Active power(MW), Reactive Power(MVAR) and frequency(Hz) for controlling the plant. (Bus name)
PPC Communication time		ms
Sampling time of PQ meter		ms
PPC total execution time		(ms) PPC total execution time once it senses any required change with respect to reference set points and send commands to inverters.

2. Format for Important settings of Inverters/WTG that should be readily available all the time for monitoring Plant performance;

Important Parameter of Inverters/WTG		
Description	**Value**	**Unit**
LVRT		
LVRT		Enable/Disable
LVRT Mode		Reactive power priority(Yes/No)
LVRT Triggering threshold		V
LVRT K-factor		
LVRT Response time		ms
Level-1 UV protection		V
Level-1 UV protection time		ms
Level-2 UV protection		V
Level-2 UV protection time		ms
Level-3 UV protection		V
Level-3 UV protection time		ms
Level-4 UV protection		V
Level-4 UV protection time		ms
Active power change gradient		%/sec
HVRT		
HVRT		Enable/Disable
HVRT Mode		Reactive power priority(Yes/No)
HVRT Triggering threshold		V
HVRT K-factor		
LVRT Response time		ms
Level-1 OV protection		V
Level-1 OV protection time		ms
Level-2 OV protection		V
Level-2 OV protection time		ms
Level-3 OV protection		V
Level-3 OV protection time		ms
Level-4 OV protection		V
Level-4 OV protection time		ms
VRT active power recovery gradient		%/sec
Frequency		
Level-1 Over frequency protection		Hz
Level-1 Over frequency protection time		sec
Level-1 Under frequency protection		Hz
Level-1 Under frequency protection time		sec
Other important setting		
Inverter recovery time		sec (Time required for revival of inverter after tripping)
Duration of momentary cessation of Inverter		ms

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	# Fault Clearance Time (>100 ms for 400 kV and 160 ms for 220 kV)	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs (YES/NO)	Other Protection Issues and Non Compliance (inference from PMU, utility details)	Suggestive Remedial Measures	Remarks
			Date	Time									
1	800 KV HVDC Kurukshetra(PG) Pole-4	POWERGRID	8-Dec-23	16:05		Relay maloperation	NA	NA	NO	NO			Details of maloperation and details of remedial action taken need to be shared.
2	400 KV RAPS_D(NP)-Shujalpur(PG) (RTCL) Ckt-1	POWERGRID	9-Dec-23	02:15		PLCC maloperation	NA	NA	NO	NO			Details of remedial action taken need to be shared.
3	800 KV HVDC Kurukshetra(PG) Pole-03	POWERGRID	10-Dec-23	02:13		Transient fault	NA	NA	NO	NO			Details of fault and protection operation need to be shared.
4	765 KV Balia-Gaya (PG) Ckt-1	POWERGRID	10-Dec-23	11:31		Phase to Phase Fault Y-B	NA	NA	YES	YES			As pe DR of Balia end, Y-N phase to phase fault at distance ~40km(18%) is observed. Line tripped instantaneously.
5	220 KV Ranpur(RS)-Bhanpura(MP) (RS) Ckt-1	RRVPNL	10-Dec-23	21:11		Transient fault	NA	NA	NA	NA			Reason of tripping of line from Bhanpura end need to be looked into.
6	400 KV Bhinmal-Zerda (PG) Ckt-1	POWERGRID	11-Dec-23	17:28		Phase to earth fault Y-N	NA	NA	YES (After 24 hrs)	YES (After 24 hrs)			As per DR, line tripped after unsuccessful A/R operation on permanent Y-N fault. Fault distancve was 114.1km (80.1%) from Bhinmal end.
7	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	27-Dec-23	04:29		Phase to earth fault B-N	NA	NA	NO	NO			Details of fault and protection operation need to be shared.
8	220 KV Ranpur(RS)-Bhanpura(MP) (RS) Ckt-1	RRVPNL	27-Dec-23	06:32		Phase to earth fault R-N	NA	NA	NO	NO			Details of fault and protection operation need to be shared.

 # Fault Clearance time has been computed using PMU Data from nearest node available and/or DR provided by respective utilities (*Annexure-* ***II)***

****Yes, if written Preliminary report furnished by constituent(s)***

R-Y-B phase sequencing (Red, Yellow, Blue) is used in the list content.All information is as per Northern Region unless specified.

^^ tripping seems to be in order as per PMU data, reported information. However, further details may be awaited.

Reporting of Violation of Regulation for various issues for above tripping

1	Fault Clearance time(>100ms for 400kV and >160ms for 220kV)	1. CEA Grid Standard-3.e 2. CEA Transmission Planning Criteria
2	DR/EL Not provided in 24hrs	1. IEGC 5.2(r) 2. CEA Grid Standard 15.3
3	FIR Not Furnished	1. IEGC 5.9.6.a 2. CEA Grid Standard 12.2 (Applicable for SLDC, ALDC only)
4	Protection System Mal/Non Operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.A 2. CEA (Technical Standards for connectivity to the Grid) Regulation, 2007: Schedule Part 1. (6.1, 6.2, 6.3)
5	A/R non operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.C 2. CEA Technical Planning Criteria

Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st December 2023 - 31st December 2023

S. No.	Utility	Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)	Remark
			Value	%	Value		%	Value		%	Value		%	
1	ABC RENEWABLE_RJ01	2	2	100	2	0	100	2	0	100	2	0	100	DR, EL & Tripping report need to be submitted
2	AHEJ3L	1	1	100	1	0	100	1	0	100	1	0	100	
3	AHEJ4L	1	1	100	1	0	100	1	0	100	1	0	100	
4	ANTA-NT	3	0	0	0	2	0	0	1	0	0	0	0	Details received
5	APL	1	1	100	1	0	100	1	0	100	1	0	100	DR, EL & Tripping report need to be submitted
6	APMPL	1	1	100	1	0	100	1	0	100	1	0	100	
7	ASEPL	1	1	100	1	0	100	1	0	100	1	0	100	
8	AURAIYA-NT	1	1	100	1	0	100	1	0	100	1	0	100	
9	BAIRASUIL-NH	1	0	0	0	1	0	0	1	0	0	1	0	Details received
10	BBMB	15	7	47	7	3	58	7	5	70	7	0	47	DR, EL & Tripping report need to be submitted
11	CHAMERA-I-NH	3	0	0	0	0	0	0	0	0	0	0	0	Details received
12	CPCC1	50	7	14	7	6	16	9	5	20	7	3	15	DR, EL & Tripping report need to be submitted
13	CPCC2	14	5	36	5	1	38	5	1	38	5	0	36	
14	CPCC3	9	0	0	2	0	22	1	0	11	0	0	0	Details received
15	DADRIGAS-NT	1	1	100	1	0	100	1	0	100	1	0	100	DR, EL & Tripping report need to be submitted
16	DHAULIGANGA-NH	5	0	0	0	5	0	0	5	0	0	1	0	Details received
17	DULHASTI-NH	5	1	20	1	3	50	1	3	50	1	0	20	DR, EL & Tripping report need to be submitted
18	JHAJJAR	3	3	100	3	0	100	3	0	100	3	0	100	
19	KOLDAM-NT	1	1	100	1	0	100	1	0	100	1	0	100	
20	NAPP	1	0	0	0	0	0	0	0	0	0	0	0	Details received
21	RAMPUR	1	0	0	0	0	0	0	0	0	0	0	0	
22	RAPPA	10	1	10	10	0	100	9	0	90	10	0	100	DR, EL & Tripping report need to be submitted
23	RAPPB	8	8	100	8	0	100	7	1	100	8	0	100	
24	RAPPC	2	1	50	1	0	50	2	0	100	2	0	100	
25	RENEW SOLARURJA (RSUPL)	1	0	0	0	0	0	0	0	0	0	0	0	Details received
26	SHREE CEMENT	1	1	100	1	0	100	1	0	100	1	0	100	DR, EL & Tripping report need to be submitted
27	SLDC-DV	18	2	11	7	2	44	7	2	44	12	1	71	
28	SLDC-HP	2	0	0	0	1	0	0	1	0	0	0	0	Details received
29	SLDC-HR	4	0	0	1	1	33	1	1	33	0	0	0	
30	SLDC-PS	21	4	19	7	1	35	7	1	35	7	0	33	DR, EL & Tripping report need to be submitted
31	SLDC-RS	102	40	39	39	8	41	39	8	41	52	0	51	
32	SLDC-UK	9	0	0	0	1	0	0	1	0	2	0	22	
33	SLDC-UP	80	21	26	22	5	29	22	10	31	22	0	28	
34	STERLITE	1	0	0	0	0	0	0	0	0	1	0	100	
35	TANAKPUR-NH	1	1	100	1	0	100	1	0	100	1	0	100	
36	TEHRI	1	0	0	0	0	0	0	0	0	0	0	0	Details received

Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st December 2023 - 31st December 2023

S. No.	Utility	Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)	Remark
			Value	%	Value		%	Value		%	Value		%	
37	UNCHAHAR-NT	1	1	100	1	0	100	1	0	100	1	0	100	DR, EL & Tripping report need to be submitted
Total in NR Region		**382**	**113**	**30**	**133**	**40**	**39**	**133**	**46**	**40**	**152**	**6**	**40**	

As per the IEGC provision under clause 37.2 (c), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event