

	<p>DELHI TRANSCO LIMITED (A Govt. of NCT of Delhi Undertaking) An ISO 9001:2015 certified company {Office of DGM(T)-OS} 1st Floor, Park Street Building, New Delhi-110001 Website:-www.dtl.gov.in</p>
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No. F.DTL/201/2021-22/DGM-(OS)/ OCC /170

Date:-31.12.2021

**Subject: 09th Meeting of Delhi Operation Coordination Committee (2021-22)
- Minutes of Meeting.**

The 09th meeting of Delhi Operation Coordination Committee (OCC) was held on 28.12.2021 (Tuesday), 11:00 A.M and conducted through online mode.

The Minutes of Meeting are enclosed for confirmation and necessary action.

Minutes of Meeting are also available on DTL website, www.dtl.gov.in under the tab "News and Information"-OCC Meeting. (http://dtl.gov.in/content/344_1_OCC-Meeting2021.aspx).

Thanking You.

Sincerely yours,

---Sd/--

(Hitesh Kumar)

Dy. General Manager (OS)

Delhi Transco Limited

Copy for favor of kind information to:

- (i) Secretary, DERC, Viniyamak Bhawan, C-Block, Shivalik, New Delhi-17
- (ii) OSD to CMD, DTL
- (iii) Director (Operation), DTL


Dy. General Manager (OS)

To all members -- As per list enclosed --

To all members - - *As per list enclosed* - -

09th Meeting of Delhi Operation Coordination Committee (2021-22)- Minutes of Meeting

Distribution List:

DTL	1. E.D.(Project-II): For early revival of 220 kV M.Bagh - Trauma Centre Ckts 2. General Manager (O&M)-I 3. General Manager (O&M)-II 4. General Manager (P&M, DM&S) 5. General Manager (Planning) 6. DGM (O&M) - North, East, West, South 7. DGM (Metering/Protection) 8. DGM (Planning)
SLDC	1. General Manager (SLDC) 2. DGM (SO)
TPDDL	HOD (PSC &AM), Sr. Manager (PSC)
BRPL	VP, AVP (SO)
BYPL	VP, AVP (SO)
NDMC	Superintending Engineer, E-1
IPGCL	AGM (T) Opr. GTPS
PPCL	1. AGM (T) Opr.PPS-I 2. AGM (T) Opr. PPS-III
MES	AEE/M.SLDC Officer
BBMB	Sr. Executive Engineer, O&M
DMRC	GM (Traction), Sr.DGM (Traction)
GMR(DIAL)	GM(DIAL)
N. Railways	Sr. DEE (TRD)

MINUTES OF 09TH DELHI OCC MEETING

Date :	28.12.2021
Time:	11:00 AM
Venue:	Online Via Video conferencing O/o-GM(O&M)-I, Delhi Transco Ltd., 220 kV S/stn Park Street, New Delhi-01
	List of participants is enclosed as Annexure-I.

The Chairman, Delhi OCC welcomed the members/ participants and requested to start the meeting as per circulated agenda.

It was informed that the peak demand for November'21 was 3831 MW against peak demand of 3769 MW in November'20. Total energy consumed in November'21 was 1819.037 MUs against 1783.447 MUs in November'2020. SLDC Delhi informed that, anticipated peak demand for the month of January'22 is 5300MW and expected availability is 5059 MW (Deficit - 241MW). The anticipated maximum energy requirement for one day is 72.806MUs and expected availability is 114.795MUs (Surplus +38.989MUs).

1. Confirmation of minutes of 8th Delhi OCC meeting (2021-22) held on dated 29.11.2021.

The 8th Delhi OCC meeting (2021-22) was held on 29.11.2021 through video conferencing. Minutes of the OCC meeting were issued on 03.12.2021 and uploaded on DTL website (http://dtl.gov.in/content/344_1_OCC-Meeting2021.aspx).

Members confirmed the Minutes of 08th Delhi OCC meeting.

DTL Agenda:-

2. Proposed planned shutdowns of DTL for the month of January-2022.

After detailed discussion with the members, OCC approved shutdowns subject to real time condition & consent from respective DISCOMs.

- **SLDC requested O&M/Gazipur to coordinate with EDWPCL at their end for the proposed shutdown of 66kV EDWPCL feeder to complete the work on the Ckt.**
- **OCC advised O&M/DTL to utilize shutdown window alongwith many shutdowns proposed by DTL Protection Deptt. by clubbing their Operation and Maintenance activities as also per PMS to minimize the outage period.**

3. Shutdowns requested by PGCIL for complete 220kV GIS Dwarka Sub-station for coating of relay card.

DTL, O&M-I division forwarded the following shutdowns to consider discussing in OCC meeting is as under:-

SN.	Bus Section	Name of DTL Line	Shutdown Period
1	Bus Section 'A'	160MVA ICT-I & II (Future bay) Dwarka-PPK-II U/G cable Ckt-I & II (upcoming) Dwarka-Naraina O/H Ckt-II Dwarka-PPK-I U/G Ckt-II Bus Coupler-I Dwarka-Naraina O/H Ckt-I Dwarka-PPK-I U/G Ckt-II Bus Sectionalizer-I	05.01.2022 (08:00 hrs to 20:00 hrs)
2.	Bus Section 'B'	Bus Sectionalizer-II Dwarka-PPK-III Ckt-I&II Bus Coupler-II Spare Bay 160MVA ICT-III&IV (Future)	05.01.2022 (08:00 hrs to 20:00 hrs)

OCC stated that it is not advisable to switch Off Dwarka sub-station completely for this type of work. OCC deferred the above shutdown and advised PGCIL & DTL/O&M to submit a revised working schedule to SLDC for carrying out the work or put up for approval of OCC in the next meeting as the case may be.

BRPL Agenda:-

4. High 11kV bus-bar Voltage at 220kV Okhla, Mehrauli & Sarita Vihar Sub-stations.

11kV Bus-bar voltage at these stations approaching 12kV. BRPL requested SLDC to reduce tap positions from 5 to 3 on 66/11kV PTR's. High voltage complaints are very frequent in area feeding from above 220kV Sub-stations. Very high voltage is threat to our system and possibility of flashover in distribution system.

BRPL apprised OCC that reduction in the tap position is the only solution & tap position of PTR's at BRPL end is at 1. OCC advised SLDC to coordinate & direct DTL grids accordingly to reduce the PTR's tap position to maintain the voltage profile near to 11kV.

(Action by DTL & SLDC)

5. Non-availability of 66 kV bus selection scheme at 220kV Najafgarh.

At 220kV Najafgarh Sub-station, 66kV Nangloi & 66kV Jaffarpur Ckt with 20MVA PTR-III is not available with bus selection scheme. This is a major concern keeping in view of the summer loading.

At 220kV Najafgarh Sub-station, there was a scheme to strengthen 66kV bus bar system. OCC is requested to deliberate the same.

DTL apprised OCC that augmentation works of 66kV bus bar is under progress & drawing has been approved. Work will be completed by March-2022.

DTL stated that there is severe space constraint at 220kV NJF sub-station, therefore, no further modification is possible in the switchyard. It was informed that 66kV Nangloi feeder already taken from Tikri Kalan, however, BRPL cable is faulty/incapable to take load reliability due to frequent failures.

After detailed deliberation, OCC advised BRPL to identify the feeders in accordance to their importance/criticality and advised BRPL to explore the possibility of shifting of their critical feeders to other bays. Bus selection should be available for all 20MVA transformers at NJF. The matter may be taken up by BRPL with DTL on appropriate forum accordingly.

BYPL Agenda:-

6. Feeder wise metering for Reactive energy billing.

It is requested that for reactive energy billing, feeder wise metering be done for each trunk feeder supplying BYPL areas as this will help identify particular feeders where reactive energy penalties are on higher side.

Keeping in view of high reactive energy penalties during off peak months, SLDC is also requested to kindly share the day wise breakup of total MUs in monthly reactive energy bills. This is required for analysis purpose to identify high reactive energy penalty days.

DTL informed that the reactive energy metering is being done as per existing CEA/ DERC guidelines. For any change in metering procedure, BYPL may approach CEA/DERC. Further, SLDC submitted that it is not feasible to provide day wise breakup of MUs in reactive energy bills.

7. Long/recent Outage/breakdown of elements in Delhi power system.

The latest status of Long/Recent Outage/Breakdowns of elements in the Delhi Power system as under:

S. no.	Element's Name	Utility	Date of outage	Status of outage as on 28.12.2021
1.	220kV PEERAGARHI - 33kV A-4 PASCHIM VIHAR CKT.	BRPL	10.07.21	'Y' PH. SINGLE CABLE CONNECTOR FAULTY. Expected by Jan-22.
2.	220kV OKHLA - 33kV EAST OF KAILASH CKT.	BRPL	25.08.21	'R' PH. SINGLE CABLE FAULTY. Expected by Jan-22.
3.	220kV PPK-II - 66kV HASTAL CKT.-I	BRPL	18.10.21	'B' PH. SINGLE CABLE FAULTY. Expected by Jan-22.
4.	220kV LODHI ROAD - 33kV NDSE CKT.	BRPL	29.11.21	'R' PH. SINGLE CABLE FAULTY. Expected by Jan-22.
5.	220kV PPK-II - 66kV HASTAL CKT.-II	BRPL	11.12.21	'B' PH. SINGLE CABLE FAULTY. Energized on 18.12.21.
6.	33kV BAY -1 (IP - KILOKRI)	BRPL	15.12.21	'B' PH. SINGLE CABLE FAULTY. Energized on 19.12.21.
7.	22kV GAZIPUR - 66kV PPG INDL. AREA CKT.	BYPL	11.12.21	'R' & 'Y' PH.CABLE FAULTY. Energized on 24.12.21.
8.	33kV BAY -28 (IP-CP)	NDMC	17.10.21	'R' PH. CABLE FAULTY. Energized on 24.12.21.
9.	400kV BAWANA, 315MVA ICT-II	DTL	30.03.21	315MVA ICT-II CAUGHT FIRE AND DAMAGED. Expected by 15.02.21.
10.	AT PEERAGARHI: - 220/33kV 100MVA TRF.-I	DTL	10.07.21	TRIPPED ON DIFFERENTIAL. TX FAULTY. Expected by March-22.
11.	220kV PARK STREET - 66kV DMRC CKT.-I&-II	DTL/DMRC	19.10.21	SHUT DOWN FOR GRID SHIFTING WORK AT DMRC END. Expected by March-22.
12.	AT ROHINI I:- 220/66KV 100MVA TR.-II	DTL	11.11.21	SHUT DOWN FOR OVERHAULING OF TRANSFORMER. Energized on 22.12.21.
13.	AT MUNDKA: 315MVA ICT - IV	DTL	13.11.21	TRIPPED ON BUCHLOZ RELAY. 'R' PH. WINDING DAMAGED.
14.	220kV MAHARANI BAGH - TRAUMA CENTRE CKT.-I&II	DTL	15.11.21	SHUT DOWN FOR JOINTING WORK OF NEW CABLE BETWEEN J.N. -05 AND JB -06 FOR PWD WORKS. Expected by 15.01.22.
15.	AT MEHRAULI: 20MVA -I	DTL	19.11.21	SHUT DOWN FOR OVERHAULING OF TRANSFORMER. Energized on 23.12.21.
16.	AT TRAUMA CENTRE: 220/33kV 100MVA PR. TR.-I	DTL	22.11.21	SHUT DOWN FOR OVERHAULING OF TRANSFORMER. Energized on 23.12.21.
17.	220kV LODHI ROAD - ALL 33kV FEEDERS	DTL	29.11.21	ALL 33kV FEEDERS (INCLUDING 33kV DEFENCE COLONY CKT UNDER B/D FROM 30.09.21) AFFECTED DUE TO BOTH 33kV BUS DEAD BECAUSE OF FIRE IN 33kV GIS. 13 NOS. 33KV FEEDERS HAVE BEEN ENERGIZED ON 28.12.21.
18.	AT SUBZI MANDI:- 33/11kV 16MVA TR-II	DTL	03.12.21	SHUT DOWN FOR OVERHAULING OF TRANSFORMER. Expected by 30.12.2021.
19.	220kV PPK -II - BAMNAULI CKT.-II	DTL	13.12.21	SHUT DOWN FOR OVERHAULING OF CKT. BREAKER. Energized on 17.12.2021.

ADDITIONAL AGENDA

SLDC Agenda:-

1. High voltages and reactive power issues in Delhi power system

With onset of winter, High Voltages conditions have been faced in Delhi System. This is happening because of decrease in power demand in Delhi area. High voltage also causes stress on Transmission system equipments. It has been observed that during high voltage conditions Delhi injects reactive power to the grid resulting payment of heavy penalty to NRPC reactive account by Delhi.

In 190th NRPC OCC Meeting held on 21.12.2021, it has been observed that generators are not absorbing reactive power as per their capability curve. During discussion in the meeting on Delhi scenario CCGT Bawana performance was shown by NRLDC. Reactive power response in respect of MVAR Vs Voltage for past 15 days (01.12.2021 - 15.12.2021) as per NRLDC SCADA data is as under:

Table-1

S. No.	Station	Unit No.	Capacity	Geographical location	MVAR capacity as per capability curve	MVAR performance (-) Absorption (+) Generation	Voltage absorption above (in KV)
1	Bawana	1	216	Delhi-NCR	-64.8 to 129.6	-	-
		2	216		-64.8 to 129.6	-	-
		3	216		-64.8 to 129.6	-	-
		4	216		-64.8 to 129.6	-40 to 40	4 1 8
		5	253		-75.9 to 151.8	-	-
		6	253		-75.9 to 151.8	-20 to 40	4 2 0

GT Unit is working in the range of -40 (absorption) to +40(generation) MVAR and STG Unit is working in the range of -20 (absorption) to +40(generation) MVAR. As such, it is observed that there are margins available as per capability curves and CCGT Bawana units are not absorbing reactive power as per their capability curve.

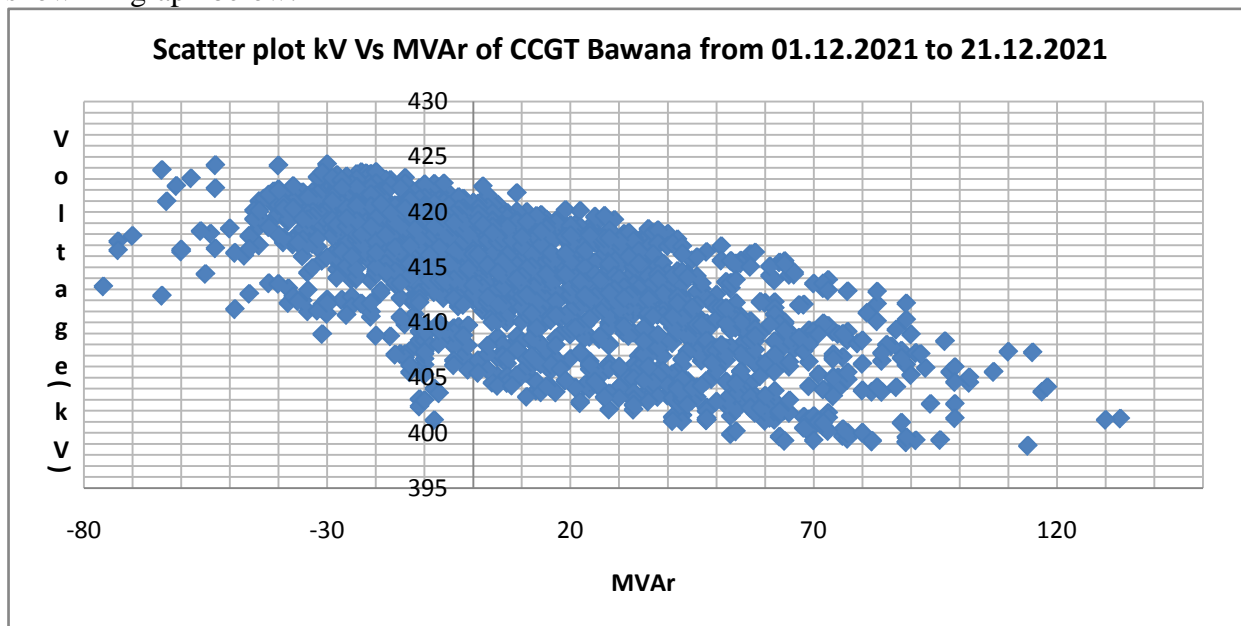
The details of MW & MVAR of Delhi generators at the time of Minimum Demand from 01.12.21 to 20.12.21 is as under:

Table-2

S. No.	Date & Time of Minimum Demand	Min. Demand in MW	Pragati Generation			GT Generation			CCGT Bawana Gen.		
			MW	MVAR	220kV Bus Voltage	MW	MVAR	220kV Bus Voltage	MW	MVAR	400kV Bus Voltage
1	01.12.2021 at 03:09:06 Hrs.	1451	160.73	-11.13	240	34.71	-3.9	240	271	-28	423
2	02.12.2021 at 03:32:57 Hrs.	1432	16.99	-7.91	240	35.06	-5.11	240	272	-26	422
3	03.12.2021 at 03:22:11 Hrs.	1434	158.92	-1.93	239	35.05	-4.51	239	277	-09	420
4	04.12.2021 at 03:29:58 Hrs.	1480	162.68	-9.15	238	35.37	-4.3	238	272	-14	419
5	05.12.2021 at 03:07:35 Hrs.	1340	160.82	-11.04	238	35.85	-4.60	238	272	01	420
6	06.12.2021 at 03:53:16 Hrs.	1519	161.22	4.37	239	34.99	-3.09	239	272	-09	421
7	07.12.2021 at 03:22:33 Hrs.	1581	160.58	0.60	237	36.60	-1.69	237	272	-24	419
8	08.12.2021 at 03:26:07 Hrs.	1527	160.44	-3.81	239	21.76	-6.50	239	271	-21	422
9	09.12.2021 at 03:26:25 Hrs.	1536	161.22	13.76	238	34.91	-7.35	238	272	13	419
10	10.12.2021 at 03:25:55 Hrs.	1560	160.03	-1.36	238	34.45	-6.09	238	273	02	420
11	11.12.2021 at 03:32:35 Hrs.	1583	159.82	-13.94	239	34.38	-6.40	239	272	-20	418
12	12.12.2021 at 03:24:26 Hrs.	1375	163	-3.64	238	34.55	-6.29	238	272	-16	420
13	13.12.2021 at 03:08:27 Hrs.	1438	163.31	-1.99	239	34.58	-7.27	239	271	-26	419
14	14.12.2021 at 03:22:27 Hrs.	1512	156.88	-11.25	239	39	-7.23	239	272	-15	421
15	15.12.2021 at 03:14:04 Hrs.	1417	159.33	-5.54	238	30	6.20	238	271	-33	421
16	16.12.2021 at 03:22:43 Hrs.	1433	159.08	-8.04	238	23.97	-5.58	238	271	-27	419
17	17.12.2021 at 03:35:42 Hrs.	1440	159.97	-11.50	237	39	-4.33	237	270	-12	416
18	18.12.2021 at 03:10:16 Hrs.	1448	160.30	-19.45	238	39	-4.97	238	270	-25	417
19	19.12.2021 at 03:18:17 Hrs.	1415	159.41	-18.81	237	39	-4.86	237	270	-24	418
20	20.12.2021 at 03:41:37 Hrs.	1431	160.01	-11.06	237	39	-5.30	237	271	-13	417

It is evident from the table-2 that the minimum demand is hovering from 1340 MW to 1583 MW . 220kV Voltages at generator bus is > 237 kV and 400kV Voltages at generator bus is > 416 kV . The scattered plot (kV Vs MVAR) of CCGT Bawana is plotted considering SCADA values from 01.12.2021 to 21.12.2021 and

shown in graph below:-



It is clear from the scattered plot that CCGT Bawana is generating MVAR even at high voltages.

The details of Reactive billing for Delhi during 2021-2022(till 05.12.2021) is as under:

Rate : 15.50 Ps/kVARh

Week No.	Duration			MVARh Drawal		Amount in Rs. Lacs		Net Amount in Rs. Lacs	Payable Amount in Rs. Lacs
				High Voltage	Low Voltage	High Voltage	Low Voltage		
1	29-Mar-21	--	4-Apr-21	-62725.1	0.1	97.22391	0.00016	95.95181	95.95181
2	5-Apr-21	--	11-Apr-21	-49523.4	0.00	76.76127	0.00000	76.76127	76.76128
3	12-Apr-21	--	18-Apr-21	-40741	0.00	63.14855	0.00000	63.14855	63.14856
4	19-Apr-21	--	25-Apr-21	-79884.7	0.00	123.82129	0.00000	123.82129	123.82131
5	26-Apr-21	--	2-May-21	-43849.8	-0.4	67.96719	-0.00062	67.96657	67.9666
6	3-May-21	--	9-May-21	-29828.1	-0.3	46.23356	-0.00047	46.23309	46.23312
7	10-May-21	--	16-May-21	-58656	0	90.91680	0.00000	90.91680	90.91681
8	17-May-21	--	23-May-21	-65367.3	0	101.31932	0.00000	101.31932	101.31934
9	24-May-21	--	30-May-21	-28302.7	22.5	43.86919	0.03488	43.90406	43.90407
10	31-May-21	--	6-Jun-21	-23736.3	0.4	36.79127	0.00062	36.79189	36.79191
11	7-Jun-21	--	13-Jun-21	-8652.6	257.3	13.41153	0.39882	13.81035	13.81034
12	14-Jun-21	--	20-Jun-21	-6937.2	16.4	10.75266	0.02542	10.77808	10.77809
13	21-Jun-21	--	27-Jun-21	-3436	30.2	5.32580	0.04681	5.37261	5.27898
14	28-Jun-21	--	4-Jul-21	-3443.1	52.1	5.33681	0.08076	5.41756	5.41757
15	5-Jul-21	--	11-Jul-21	-2292.9	-217.6	3.55400	-0.33728	3.21672	3.21673
16	12-Jul-21	--	18-Jul-21	-7594.6	-23.7	11.77163	-0.03674	11.73490	11.73489
17	19-Jul-21	--	25-Jul-21	-18657.2	-0.9	28.91866	-0.00140	28.91727	28.91727
18	26-Jul-21	--	1-Aug-21	-13197	-0.1	20.45535	-0.00016	20.45520	20.45519
19	2-Aug-21	--	8-Aug-21	-8405.4	-14.8	13.02837	-0.02294	13.00543	13.00543
20	9-Aug-21	--	15-Aug-21	-7372.7	-5.5	11.42769	-0.00853	11.41916	11.41916
21	16-Aug-21	--	22-Aug-21	-1719.3	-126.2	2.66492	-0.19561	2.46931	2.46929
22	23-Aug-21	--	29-Aug-21	-5961.8	-17.8	9.24079	-0.02759	9.21320	9.21319
23	30-Aug-21	--	5-Sep-21	-35536.6	-0.7	55.08173	-0.00109	55.08065	55.08066
24	6-Sep-21	--	12-Sep-21	-28971.8	0	44.90629	0.00000	44.90629	44.90629
25	13-Sep-21	--	19-Sep-21	-35714.4	0	55.35732	0.00000	55.35732	55.35733

26	20-Sep-21	--	26-Sep-21	-29991	0.1	46.48605	0.00016	46.48621	46.48589
27	27-Sep-21	--	3-Oct-21	-26886.3	0	41.67377	0.00000	41.67377	41.67378
28	4-Oct-21	--	10-Oct-21	-20874.4	0	32.35532	0.00000	32.35532	32.35531
29	11-Oct-21	--	17-Oct-21	-51993.8	-0.1	80.59039	-0.00016	80.59024	80.59024
30	18-Oct-21	--	24-Oct-21	-73954.4	0	114.62932	0.00000	114.62932	114.62934
31	25-Oct-21	--	31-Oct-21	-81484.2	0	126.30051	0.00000	126.30051	126.30053
32	1-Nov-21	--	7-Nov-21	-83948.6	0	130.12033	0.00000	130.12033	130.12035
33	8-Nov-21	--	14-Nov-21	-77986.1	0	120.87846	0.00000	120.87846	120.87847
34	15-Nov-21	--	21-Nov-21	-73851.1	0	114.46921	0.00000	114.46921	114.46921
35	22-Nov-21	--	28-Nov-21	-64729.1	0	100.33011	0.00000	100.33011	100.33011
36	29-Nov-21	--	5-Dec-21	-69042.7	0	107.01619	0.00000	107.01619	107.0162
	Total			-1325248.70	-29	2054.1355	-0.04495	2052.81829	2052.72465
Note: In case of energy, (-) ve indicates injection and in case of amount (-)ve indicates receivable.									

OCC observed that generators are not absorbing reactive power at high voltages however, more data is required for further assessment. Representative of CCGT Bawana was absent in the meeting & OCC advised SLDC to write a letter to CCGT Bawana, Pragati & GT generation to specify and submit the reactive power generation. The data must also be submitted on daily basis to SLDC.

OCC further advised SLDC to monitor the high voltage & reactive power issue and assist the station staff in taking necessary steps for maintaining within acceptable limit.

OCC deliberated the high voltage & reactive power injection issue in Delhi system during winter season & advised additional following corrective action:-

- i. Switching off the capacitors at all the Substations of Delhi.
- ii. Transformer tap optimization by DTL and DISCOM.
- iii. Monitoring of all 400/220kV ICTs and taking actions wherein VAR flows are observed from 220kV to 400kV side. In this respect reactive energy changes could also be monitored.
- iv. Opening of lightly loaded transmission cables/transmission lines keeping reliability in focus.
- v. All the generators are advised not to inject MVAR in grid and should absorb MVAR particularly during high voltage condition above 400kV to improve voltage profile of the grid as per their capability curve. The detail of MVAR generated /absorbed by each machine be intimated to SLDC for proper analysis.
- vi. DISCOMs/DMRC were requested to select the list of feeders for switching exercise to control reactive power injection. List of selected feeders to be shared with SLDC.
- vii. For switching of 220kV level double ckt U/G cables, OCC advised switching of U/G cable circuits on alternate basis to ensure the healthiness of both the ckts. DTL/O&M shall inform the SLDC if any U/G cable ckt switched off for more than a week.

OCC also advised DMRC, DTL & DISCOMs to explore all possibilities to control system voltage profile and reactive power injection in system from their respective ends.

(Action by Generators (IPGCL, PPCL, Bawana) DMRC, DTL & DISCOMs)

2. Returning of shutdown of 220kV Maharani Bagh-Trauma Centre cks I & II.

In 07th Delhi OCC meeting held on 26.10.21, a shutdown requested by DTL Project Deptt was approved from 15.11.21 to 01.12.21 to shift the existing 220 kV U/G laid cables in order to facilitate PWD for making underpass.

The shutdown was requested for 15 Days and it was availed on 15.11.21 and the same shutdown has not been returned till now. The 220kV Maharani Bagh –Trauma centre cks are important link in South Delhi area and facing reliability issues in managing the Grid. It is requested to update the status on completion of the shutdown works.

DTL Project Deptt is requested to return the shutdown on priority.

As gathered from DTL Project-II, the 220kV D/C Maharani Bagh-Trauma centre cks are expected to be energized by 15.01.2022.

OCC observed that the shutdown has been extended considerably thus affecting the shutdown schedules of other sub-station elements. OCC directed DTL to expedite the work and return the shutdown of Maharani Bagh-Trauma Centre Ckt-I & II at the earliest.

(Action by DTL)

DTL Agenda

3. Emergency shutdown at 220kV GIS Tuglakabad for attending internal oil leakage rectification of power transformer-II, 220/66 kV 160MVA

DTL requested shutdown of 160MVA Tx-II at 220 kV Tughlakabad as below:

S. No	Name of Sub-Station	Date of Shut-down	Time duration of shut-down	Name of the Element	Work to be carried	Remarks
1	220kV GIS Tuglakabad	10.01.2022 10:00hrs	From 10.1.2022 10:00hrs to 21.01.2022 18:00hrs	Bay No 211 220/66kV 160 Tx-II	Attending of oil leakage from main oil tank to OLTC tank by BHEL Jhansi representative as per MoM with PGCIL and DTL	Load shall be met on bay no. 221, 220/66kV , 160MVA Tx I

OCC approved the above shutdown for proposed dates.

4. Shutdown of Bamnauli-PPK 1 and Bamnauli-PPK3 (D/C) for loc# AP14 and AP15

PGCIL has submitted revised shutdown schedule of Bamanuli- PPK1 and Bamnuli-PPK3 lines for stringing of 400kV conductor at Loc# AP14 and AP15. As per OCC shutdown list for the month December-2021, the following shutdowns were approved on the request of PGCIL for stringing of 400 kV conductor between loc# AP 14 and AP 15. However, PGCIL vide email dated 15.12.2021 informed that due to construction ban w.e.f 14.11.2021 the gantry work

is still not completed, as such, lowering of 220 kV DTL lines on gantry cannot be possible during said approved period. Hence, PGCIL submitted revised shutdown list as per below:-

S.No	Name of Lines	PGCIL submit revised schedule date	Time
1.	220 KV BML- PPK 1	03.01.2022 to 05.01.2022	03 days continuous
2.	220kV BML- PPK3	06.01.2022 to 08.01.2022	03 days continuous
3.	220kV BML- PPK1 and BML-PPK 3	09.01.2022	01 day

PGCIL informed that date for shutdown has been revised again & schedule is as under:-

S.No	Name of Lines	Shutdown dates
1.	220 KV BML- PPK 1	20.01.2022 to 22.01.2022
2.	220kV BML- PPK3	23.01.2022 to 25.01.2022
3.	220kV BML- PPK1 and BML-PPK 3	26.01.2021

After detailed deliberation among members of DTL, DISCOMs, SLDC, the OCC approved above shutdowns subject to real time conditions.

Further, the shutdown at Sr. No-3 is approved subject to revival of 220kV Maharani Bagh-Trauma Centre Ckt-I & II. OCC also advised PGCIL to complete all the necessary documentation formalities.

(Action by DTL & PGCIL)

5. Fire incident in 33 kV GIS and power cables at 220kV GIS Sub station Lodhi Road due to fault in 33 kV cable of NDSE Circuit-II of BRPL on dt. 29.11.2021 at 22:09 hrs due to poor workmanship of the jointer of BRPL

Brief description: 220 kV Substation at Lodhi Road is connected to 220 kV Substation at Maharani Bagh through 220 kV Double circuit O/H transmission lines. It feeds the load of South Delhi and VVIP area of lodhi road and adjoining area with installed transformation capacity of 300 MVA at 220 kV level (3x100 MVA transformers). At the time of incident, load of 29MW was being fed from 220 kV Lodhi Road Substation. 33 kV Incomer-I and III were connected to 33kV Bus-I while 33 kV Incomer -II was connected to 33 kV Bus-II. 33 kV Bus Coupler was in **OFF** position and 33kV Bus sections were in **ON** position.

Tripping Details: At about 22:00Hrs on 29.11.2021, the 33kV System at Lodhi Road was running with a load of approx. 29MW with load of around 1MW on 33 kV NDSE Circuit-II. At

22:09hrs, 33 kV NDSE Circuit-II tripped and subsequently 33 kV I/C -II also tripped with following indication:

S. No	Name of Bay	Time of Incidence	Time of Restoration	Relay Indication
1.	33kV NDSE Ckt-II (12A, Bus-I)	29.11.2021 22:09 hrs	Under Breakdown	Distance Zone-I, Phase-B
2.	33kV Incomer No.II (210A, Bus-II)	29.11.2021 22:52 hrs	-	O/C

Observations:

1. At 22:09 Hrs, 33kV NDSE Circuit-II tripped on Distance Protection with Fault Current of 25 kA.
2. Smoke and fire reported beneath the GIS panel of NDSE from the 33 kV GIS room. The presence of smoke is only possible when there is looseness of the cable termination due to poor workmanship of the jointer of BRPL while plug –in and plug-out of the cable.
3. 33kV I/C-II tripped on 3-phase Over current protection at 22:52 hrs.
4. 220kV Maharani Bagh-Lodhi Road ckt- I & II made off at 23:09 hrs to Isolate Grid supply from safety point of view for controlling the fire by Delhi Fire Services.
5. Panel No. 16 to 27 of 33kV GIS (excluding panel no. 26 i.e Defence Colony Ckt. already taken out) completely burnt due to fire from the 33kV cable trench below the panels.
6. 33 kV cables of Vidyut Bhawan, JLN, 100MVA I/C-III, 20MVA- 2 nos. , 16MVA-2 nos., 33kV capacitor Bank -2nos., NDSE- ckt2, Defence Colony, CBI feeder completely burnt.
7. Control cables of 33kV HUDCO, 20MVA-Tr.1, 16MVA Tr.4 100MVA I/C-I, Vidyut Bhawan, JLN, 100MVA I/C-III, 16MVA-2, NDSE-2, Defence Colony, CBI, IHC-2 feeder completely burnt.
8. Damage due to heat also observed in LCC panels of 33kV Panel nos. 1 to 15, however they did not burn.
9. The smoke was also observed on 18.11.21 at 21:29 hrs on the same panel of 33kV NDSE Circuit-II during the feeder tripping and the same was informed to System Operation & Mtc. Team of BRPL.
10. One panel of 33KV GIS at 220KV Peeragarhi Station was also damaged in 2021 due to poor workmanship of the jointer of BRPL while plug –in and plug-out of the cable and BRPL is paying for the repairing of this damaged panel.

After joint efforts of DTL, M/s Schneider(OEM) and BRPL on day night basis all burnt cables and joints and other services to repaired panels have been completed and about 10-12 no panels are expected to be revived by 30.12.2021 out of 27 no, which means 15-17 no panels will remain out of service and early revival/replacement is required to meet the coming summer load.

As per OEM i.e M/s Schneider these repaired panels are not reliable and may malfunction in near future as due to very high heat and smoke, life of most of the components are reduced a lot and replacement of all repaired panels should be done on immediate basis to avoid outage and from the point of view of safety .

In view of above BRPL is requested to arrange the replacement of the 27 no 33KV GIS panel with new panel as early as possible and till then make every possible efforts to maintain uninterrupted power supply to South Delhi and VVIP area of Lodhi road and adjoining area.

OCC is requested to deliberate and pass necessary instructions/orders so that uninterrupted power supply to South Delhi and VVIP area of Lodhi Road and adjoining area is not affected.

DTL apprised OCC that OEM is working to revive the repairable 33kV GIS panels, however, as the equipment have already been subjected to very high temperatures during the incident, these may need to be replaced with new panels in near future to maintain reliability & safety for the Man & material. DTL also apprised OCC that 13 nos. panels of 33kV GIS will be revived by 30.12.2021 from which BRPL will receive 4 to 5 feeders besides supply from 20MVA/16MVA 33/11kV trf. as per requirement to maintain their system intact for coming summer season.

The OCC advised BRPL to make necessary arrangements to maintain reliability and to take action for replacement of damaged panels in Steering Committee, so as to meet the load demand in upcoming summer peak, for which BRPL has agreed to maintain it. BRPL further stated that the issue of replacement of 33kV panels is already taken up at management level .

Further, OCC instructed DTL to increase monitoring of the panels under revival and advised SLDC to take immediate action as soon as any request is received from Lodhi Road regarding operation of the switchgear.

The meeting ended with thanks to the Chair.
