



**DELHI TRANSCO LIMITED**  
(A Govt. of NCT of Delhi Undertaking)  
Office of DGM(T)-OS  
108, 1<sup>st</sup> Floor, 220 kV Sub-Stn Park Street Building,  
New Delhi-110001

No. F.DTL/2020-21/DGM(OS)/45

Date:22.12.2020

To,  
**All Members of Operation Co-ordination Committee**

<b>DTL</b>	General Manager (O&M)-I, Chairman OCC General Manager (O&M)-II General Manager (P&M, DM&S) General Manager (Planning) DGM (O&M) - North, East, West, South DGM (M/P) DGM (Plg.)	
<b>SLDC</b>	ED (SLDC) DGM (SO)	
<b>TPDDL</b>	HOD (PSC&AM) Sr. Manager (PSC)	
<b>BRPL</b>	AVP (SO)	
<b>BYPL</b>	AVP (SO)	
<b>NDMC</b>	Superintending Engineer, E-1	
<b>IPGCL</b>	AGM (T) Opr. GTPS	
<b>PPCL</b>	AGM (T) Opr.PPS-I AGM (T) Opr. PPS-III	
<b>MES</b>	AEE/M.SLDC Officer	
<b>BBMB</b>	Sr. Executive Engineer, O&M	
<b>DMRC</b>	Addl. GM (Elect.) Sr.DGM (Traction)	
<b>GMR(DIAL)</b>	GM(DIAL)	Special Invitee
<b>N. Railways</b>	Sr. DEE (TRD)	Special Invitee

**Sub: Agenda for 08<sup>th</sup> Delhi OCC Meeting (2020-21) to be held on 29.12.2020 (Tuesday) at 11:00 A.M. through video conferencing.**

The 08th Delhi OCC meeting (2020-21) is scheduled to be held on dt.- **29.12.2020 (Tuesday), 11:00 A.M.** and will be conducted through video conferencing as per attached agenda. **The link and password for joining the meeting is attached in mail.**

Members are hereby requested to make it convenient to attend the meeting via **video conferencing**.

Thanking You.

Sincerely yours,

sd/-  
(Hitesh Kumar)  
DGM(T)- OS,DTL

## **DELHI TRANSCO LIMITED**

(Regd. Office: Shakti Sadan, Kotla Road, New Delhi-110002)

### **AGENDA FOR DELHI OCC MEETING NO. 08/2020-21**

**Date** : **29.12.2020**  
**Time** : **11:00 AM**  
**Venue** : **Via Video conferencing**  
In O/o-GM(O&M)-I, Delhi Transco Ltd.,  
220 kV Sub-Stn Park Street Building,  
New Delhi-110001

#### **1. Confirmation of minutes of 07th Delhi OCC meeting (2020-21) held on dated 25.11.2020.**

The 07th Delhi OCC meeting (2020-21) was held on 25.11.2020 through video conferencing in accordance with the agenda circulated vide letter dt: 23.11.2020. Minutes of the aforesaid OCC meeting were issued on 04.12.2020 and the same was also uploaded on DTL website.

**SLDC's Comments on minutes:** SLDC Delhi seeks change in the wordings for the agenda point no. 4.7 .“Review of Delhi islanding Scheme”. The changes are as under:

*DTL Protection Deptt. informed that revised Delhi Islanding scheme consists of Delhi local generation as well as generations from Dadri (Unit 1, 2), Dadri gas and APCPL. At present, the generation from Dadri and APCPL are not being scheduled by DISCOMs. Hence, in case of Island formation at 47.9Hz as per approved scheme there will be deficient generation for survival of island. Thus all DISCOMs are advised to review the scheduling else islanding of Delhi generators may be conceptualized so that in case of any grid disturbance essential load may be survived through islanding of Delhi generators.*

*In this regard, DISCOMs and Generators under Delhi Islanding scheme shall provide details to Delhi OCC in the next OCC meeting.*

*After deliberation, OCC also advised DISCOMs to submit the bifurcated details in the category of Essential, Critical & Supercritical loads as desired in NRPC OCC.*

**(OCC may deliberate)**

#### **2. Proposed planned shutdowns of DTL for the month of January-2021.**

DTL proposed planned shutdowns for the month of January-2021 (Annexure-I).

**(OCC may deliberate)**

### 3. Status of joint checking of Overhead Power Line crossings with Northern Railways representatives by DTL & DISCOMs.

In the 2<sup>nd</sup> Delhi OCC meeting (2020-21), committee suggested all utilities to conduct the survey in 1<sup>st</sup> fortnight, July-2020 & share the details with OCC. OCC further advised Discoms, DTL & Northern Railways to conduct joint survey of the power lines on regular basis.

In 4<sup>th</sup> OCC meeting on 24.08.20, DTL/O&M North & East informed about completion of survey & details shared with OCC. During this meeting, Northern Railway DEE/TRD raised a concern regarding very bad condition of 33 kV Feeder at Okhla-NZM Line of BRPL and jumpers are in damaged condition & may fall on the track. OCC advised BRPL to look in to the matter and attend it immediately to avoid unwanted breakdown.

In 5<sup>th</sup> OCC meeting on 24.09.20, Northern Railway DEE/TRD Delhi division informed that survey of the 12 Overhead Transmission lines out of 27 line has been completed, however survey of 15 lines still pending.

In 06<sup>th</sup> OCC meeting on 28.10.20, DEE/TRD informed that 07 lines are pending for survey. DEE/TRD requested to dismantle the overhead crossing at SP Marg KM 10/17-18 & 10/19-20 if the section is not used. NDMC representative replied to look into and revert back. It was informed by TPDDL/BRPL that a line emanating from BBMB Rohtak Road feeding to Haryana probably belongs to HVPNL and they may be approached. OCC advised all utilities to complete the pending survey of lines/ take remedial actions and share the status in next OCC meeting.

In 07<sup>th</sup> OCC meeting on 25.11.20, DEE/TRD informed that 06 lines are still pending for survey. DEE/TRD also requested to provide communication details for Overhead crossings in the section DBSI-DAZ belonging to TPDDL & SSB-NNO belonging to BSES. DEE/TRD requested to dismantle the overhead crossing at SP Marg KM 10/17-18 & 10/19-20 if the section is not used. NDMC representative replied to look into and revert back. OCC advised all utilities to complete the pending survey of lines/ take remedial actions and share the status in next OCC meeting.

#### List of O/H power lines pending for joint survey : (as on 15.12.2020)

SN	Depot	Section	Location	Voltage	Supply Authority	Last joint checking	Contact Person (Railways)
1	NUR	BHD-NUR	15/15-17, 16-18	66kV	TPDDL	08.06.2018	Sh. Anil Thakur, ADEE/TRD/Panipat, 9729531320, Sh. Sanjay Uppadhyay, SSE/OHE/Narela, 9717648532
2	NDLS	ANDI-BHD	11/15-11/17	66kV	TPDDL	20.03.2018	Sh. Sunil Singh, ADEE/TRD/Patel
3	PTNR	DBSI-DAZ	25/11-12, 25/11-12A	33kV	TPDDL	04.03.2015	Nagar 9717631312 Sh. Ajay Kasana, SSE/OHE/Patel Nagar 9971265266
4	TKD	HNZM-TKJ/SSP	1532/39G-41G	33kV	BSES	26.03.2016	Sh. Bikarmajeet Singh, ADEE/TRD/Faridabad,
5	TKD	HNZM-TKJ/SSP	1532/41G-43G	33kV	BSES	26.03.2016	9717632607, Sh. Pradeep

6	BGZ	SSB-NNO	15/9-11, 15/10-12	66kV	BSES	07.12.2016	Chaudhary, SSE/OHE/TKD 9717632847
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**NDMC informed that, Overhead crossing at SP Marg KM 10/17-18 & 10/19-20 has been physically checked by technical person of concerned Division and the mentioned cable does not pertain to NDMC.**

**Railways updated, Overhead crossing at SP Marg Km 10/17-18 & 10/19-20 , BSES 33 KV has been disconnected but need to be dismantled**

**(DISCOMs, DTL & Railway may update)**

#### **4. Survival of Local Island at GTPS/ Pragati.**

During 20th GCC meeting as per MoM at S.No. 2.4 (9.12) following was discussed:-

“BYPL representative raised the issue of survival and subsequent synchronizing of local islanding at GT/ Pragati.

GCC advised DTL to carry out a joint visit with Discoms and IPGCL/ PPCL to analyze the requirements for sustaining Local Island at GT station”. -

The matter was deliberated in the 12th (2018-19) Delhi OCC meeting held on 28.03.2019 and a committee comprising of following members was constituted for carrying out the above desired work at Pragati:-

- (i) Sh. Satyendra Prakash, AGM(Elect./C&I), PPS-I, PPCL.
- (ii) Sh. B.L. Gujar, DGM (Prot.), DTL.
- (iii) Sh. Bharat Tiwari, MGR(OS), DTL
- (iv) Sh. Deepak Kumar, AM(T)-Pragati, DTL.

In 04<sup>th</sup> Delhi OCC meeting (Aug-2020), DTL representative informed that the control cable laying work assigned to DTL has been completed on 31.07.2020 . PPCL/Pragati representative informed OCC about availability of spare items by the end of August-2020 & work will be executed by 30.09.2020.

In 5<sup>th</sup> Delhi OCC meeting (Sep-2020), PPCL/Pragati informed OCC about installation of meter at site & connection of meter will be completed after the visit of DTL/Protection.OCC advised to expedite the remaining work & to complete the work by 12.10.2020.

In 06<sup>th</sup> Delhi OCC meeting (Oct-2020), It was informed that installation work has been completed. PPCL/Pragati requested DTL/Protection to visit the site for finalization & execution of control wirings. OCC advised DTL & PPCL to plan a meeting by next week and complete the pending works.

SLDC is of the view that, the above work must be completed within specific timeline considering the importance of work and a long pending issue in Delhi OCC Forum.

In 07<sup>th</sup> Delhi OCC meeting (Nov-2020), DTL Protection Deptt informed that, CVT Wiring issue at GTPS/ Pragati has been resolved and Control cable has been laid. The remaining works are expected to be completed by 15th Dec 2020.

**DTL/Pragati updated that, the CVT wiring works are under progress & expected to be completed by 25.12.2020.**

**(Committee may update status)**

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

This is regarding Agenda item no. 7 of 177<sup>th</sup> NRPC OCC held on 18.11.2020 and 19.11.2020. The agenda context is reproduced as under :

In the 45<sup>th</sup> TCC / 48<sup>th</sup> NRPC meeting, it was decided that the study report for 2019- 20 along with the guidelines for finding the capacitor requirement at 11/33 kV level in NR would be submitted by CPRI.

In the meeting, CPRI representative had stated that as there were diversified network configurations at the level of DISCOMs, the guidelines to be provided would be generalized and may also include some empirical formula along with examples which may guide the DISCOMs for finding out the capacitor requirement.

Based on the above deliberation, CPRI has submitted the report of the study which was circulated with all the SLDCs and STUs vide e-mail dated 02.11.2020

The state-wise capacitor requirement as stipulated in the CPRI report is as given below

State	Existing Capacitor Bank as per base case file dated on 11.07.2018 (operational)		Recommended Capacitor Banks (MVAR)	Total Compensation (MVAR)
	Switched Shunt (MVAR)	Fixed Shunt (MVAR)		
Punjab	1465.49	301.27	629.25	2396.01
Haryana	227.1	0	1304.83	1531.93
Rajasthan	45.3	0	1659.4	1704.75
Delhi	0	0	1254.3	1254.3
Uttarpradesh	6020.46	0	37	6057.46
Uttarakhand	155	0	163	318
Himachal Pradesh	853.12 (293.6)*	122.2	0	415.8
Jammu & Kashmir	20	0	353.63	373.63
<b>Total</b>	<b>8226.95</b>	<b>423.47</b>	<b>5401.41</b>	<b>14051.88</b>

The above recommendations of CPRI for requirement of capacitor bank was shared to DTL Planning & Delhi Discoms by SLDC, on 04.11.2020 through email for their examination and comments. No comments received from DTL Planning and DISCOMs except BYPL.

In 177<sup>th</sup> NRPC OCC, SLDC has submitted the preliminary reply to NRPC which is as under :

The total installation of Capacitor Banks in Delhi as on 31.03.2020 is 5255.43MVARs and the details are as under

Utility	Installed Capacity in MVAR (HT)	Installed Capacity in MVAR (LT)	Total
DTL	773.52	0	773.52
BRPL	1661.12	241.80	1902.92
BYPL	1012.17	102	1114.17
TPDDL	1047.68	119	1166.68
NDMC	253.74	24.29	278.03
MES	20.1	0	20.10
<b>TOTAL</b>	<b>4768.33</b>	<b>487.1</b>	<b>5255.43</b>

However, the CPRI report has recommended 1254.3MVAR capacitor bank for Delhi considering installed capacity as Nil.

In addition to above, during summer 2019 Delhi has met a Peak demand of 7409MW and at that time reactive power drawl was Approx. 470 MVAR from the grid. It seems that CPRI recommendation of 1254.3 MVAR is on very higher side for requirement of capacitor bank in Delhi.

**In 7<sup>th</sup> OCC meeting, After detailed deliberation, OCC advised DTL/ Planning and DISCOMs to study CPRI report and any other previous concerned report. The OCC also requested all utilities to send their comments to SLDC for further submission and deliberation in NRPC/OCC.**

**BRPL Comments/ Submission:-**

- *In table No.5 of CPRI study report, the installed capacity of capacitors is shown as zero and additional capacity recommended is 1254.3 Mvar.*

*As per the agenda of Delhi OCC the installed capacity of capacitors in Delhi is about 5255 MVAR as under:*

Utility	Installed Capacity in MVAR (HT)	Installed Capacity in MVAR (LT)	Total
DTL	773.52	0	773.52
BRPL	1661.12	241.80	1902.92
BYPL	1012.17	102	1114.17
TPDDL	1047.68	119	1166.68
NDMC	253.74	24.29	278.03
MES	20.1	0	20.10
<b>TOTAL</b>	<b>4768.33</b>	<b>487.1</b>	<b>5255.43</b>

*The above mistake is to be rectified.*

- *Most of the time even the existing capacity are put off to arrest voltage rise. As such the existing capacity is itself is more than sufficient to meet the capacity requirement.*

- To control high voltage issues CEA has even suggested DTL to install 1100 MVar reactors at various substations subject to feasibility (Reference 39 The standing committee on Power system planning for northern region meeting held on 29-30 th May 2017) . In the 40 th of meeting of above committee according to the feasibility DTL identified locations of Reactors installation amounting total of 450 MVar.
- At present to control high voltage issues various steps like opening of lightly loaded circuits at 400kV, 220kV, 66kV and 33kV level is being done putting the reliability of system at stake.
- Voltage of system remains very high during winter season especially during night hours (off peak demand period). Injection of huge reactive power to the system is one of the main reasons for high voltage operations. It has been observed that reactive power injection occurs from certain consumer levels (DMRC etc...) to DISOM networks to DTL system and DTL system to Northern grids.
- High voltage operation affects the life of the switch gears at all levels. The DTL steering committee shows that in future all new 220KV S/Stns could be provided with 2 number 25 Mvar reactors to arrest the high voltage operation.
- Even after switching off EHV feeders/existing capacitors reactive energy charges are also payable during peak load period also.
- Analysis of reactive power bills during 2019-20 and 2020-21 reveals that reactive power injection to the system during high voltage regime. The details are as under.

**ALL FIGURES IN REACTIVE MILLION UNITS:**

Month	2019-20		2020-21	
	Drawl during High Voltage	Drawl during Low Voltage	Drawl during High Voltage	Drawl during Low Voltage
April	-45.38	1.28	-34.71	-1.80
May	-10.73	3.24	-7.52	0.35
June	-5.85	9.36	-1.12	1.22
July	-5.81	13.08	3.02	1.05
Aug	-8.41	4.61	-1.09	1.33
Sep	-9.66	4.70	0.094	-1.92
Oct	-43.97	-0.50	-24.56	-0.92
Nov	-68.77	0.079		
Dec	-71.33	0.77		
Jan	-81.48	-0.086		
Feb	-57.06	-0.73		
Mar	-71.64	-0.14		
Total	-480.15	37.61	-65.89	-0.68
Net Amount Total (Rs)	7.5 Cr (approx)		0.95 Cr(approx)	

It would be appreciated that the new substations which are planned could only be fed through cables due to various compulsions, the capacitive load requirement would automatically met through these cable in feeds.

However at present the planning is done for installation of capacitors at 20/10/7 MVAR at 66kV, 33kV and 11KV level respectively with new substations.

*Considering the prominent high voltage issues study is being proposed through professional agencies for introduction of combination of capacitors and reactors (like STATCOM's) for new substation being planned at BRPL which not only reduce reactive power charges but also for maintaining the quality and reliability of the system as these elements can operate according the requirement of capacitors and reactors depending on the system conditions.*

**(OCC may deliberate)**

## **6. Review of Delhi islanding Scheme**

This is regarding Agenda item no. 12 of 177<sup>th</sup> NRPC OCC held on 18.11.2020 and 19.11.2020. The agenda context is reproduced as under :

*A meeting was held on 29.10.2020 through Video Conferencing to discuss issues related to Delhi Islanding scheme. Following deliberations were held in the meeting:*

- *DTL representative briefed about the history of designing of Delhi Islanding scheme and basis of the same through a presentation (Enclosed as Annexure – A.VII). He highlighted about revisions in Delhi Islanding scheme which is now a single island after merging of 4 smaller islands. Further, data of six scenarios for summer and winter i.e. peak, off-peak and average for the FY 2019-20 were deliberated.*
- *It was highlighted that Revised Delhi Island consists of Delhi generation as well as generations from Dadri (Unit 1, 2), Dadri gas and APCPL. These generators are not being scheduled by DISCOMs. Hence, in case of Islanding, generation from these generators may not be reliable source. It was suggested that rather than complete Delhi Island, individual generators islanding is more reliable and stable.*
- *PPCL representative highlighted that during February 2018, islanding was witnessed on PPS-1 which had survived for 30-35 minutes. He mentioned that Black start facility is also available on GTPS which can be also be extended to PPS as well as load connected are super critical loads which are also in radial nature.*
- *NRLDC highlighted that issue of mismatch in load-generation is mainly due to huge dependency of Delhi on import. In such case, minimum base generation can be ensured for generators to ensure reliability of system despite of costly generation and corresponding commercial issues can also be tackled separately. It was stated that Rihand – Dadri Bipole HVDC is being disconnected from Dadri during Islanding. It was suggested that possibility of connecting HVDC to facilitate generation from Rihand may also be explored. Further, an option of SPS also needs to be explored. It was stressed reliability needs to be focused rather than commercial issues.*
- *DTL also highlighted that current load-generation scenario has completely changed now and there is need to conduct a study to explore possibilities such as consideration of HVDC in island, smaller island of individual generation etc. Further, stability of islands needs to be checked in view of the load-generation balance, reactive power compensation considering large no. of cables in Delhi etc.*



- *Delhi SLDC highlighted that earlier study through CPRI was carried out for single islanding and accordingly blocking of HVDC, disconnection of feeders was designed. Considering changed load-generation scenario, it was decided that internal discussion with Delhi DISCOMs, SLDC, DTL and other generators may be carried out and proposal may be submitted to committee.*

- *Accordingly, the following roadmap was agreed in the meeting:*

- a. Load wise bifurcation i.e. super critical, critical and essential loads may be done in meeting with DISCOMs by Delhi SLDC.*

- b. Detailed modeling of downstream Delhi network may be done for carrying out study.*

- c. After submission of model, study to explore different possibility of islanding design may be done.*

*Further, NRPC enquired about current preparedness of Delhi during any eventuality in real time. PPCL informed during any incidence, natural island of PPS-1 and GTPS is currently having generation of 198 MW and Bawana is having 400-500 MW. Hence, around 600-700 MW island can be formed presently in any eventuality which is without Dadri and APCPL. It was also highlighted that along with generation of Dadri and APCPL, complete Delhi Island with load around 3000 MW can also be formed.*

SLDC has already emailed Discoms for updation of Load wise bifurcation i.e. super critical, critical and essential loads for reviewing of Delhi Islanding Scheme.

DTL Protection and Planning Department to explore the possibilities of:

- a) Detailed modeling of downstream Delhi network may be done for carrying out study.

- b) Study to explore different possibility of islanding design may be done.

**In 7<sup>th</sup> OCC meeting, DTL Protection Deptt. informed that revised Delhi Islanding scheme consists of Delhi local generation as well as generations from Dadri (Unit 1, 2), Dadri gas and APCPL. At present, the generation from Dadri and APCPL are not being scheduled by DISCOMs. Hence, in case of Island formation at 47.9Hz as per approved scheme there will be deficient generation for survival of island. Thus all DISCOMs may be requested to review the scheduling else islanding of Delhi generators may be conceptualized so that in case of any grid disturbance essential load may be survived through islanding of Delhi generators.**

**In this regard, DISCOMs and Generators under Delhi Islanding scheme shall submit their comments to Delhi SLDC within 07 days so that NRPC may be apprised.**

**After deliberation, OCC also advised DISCOMs to submit the bifurcated details in the category of Essential, Critical & Supercritical loads as desired in NRPC OCC.**

### **BYPL Submission:-**

#### ***Identification of BYPL Essential Load (Super critical and Critical )***

*In reference to MOM, dated 04/12/2020, of 7th OCC meeting held on 25/11/2020, an agenda item 4.7 refers to Delhi Islanding Scheme. As per the discussion during the meeting, Discoms including BYPL were asked to submit the bifurcated details in the category of*

Essential Load comprises of Critical & Super Critical Loads. BYPL submits the required details and its comments in respect of the proposed Islanding scheme are as under:

**The list of super critical and critical grids with load is as under:**

<b>BYPL Super Critical Load</b>				
<b>DTL Source</b>	<b>Alternate DTL Source</b>	<b>BYPL Grid</b>	<b>Load in MW</b>	<b>Category</b>
220kV IP Station	220kV Rajghat Station	G B Pant	18	Hospital/ Delhi <a href="#">secretariat</a> / SLDC and BYPL Control Room/ National Information Center/ Water treatment plant(WTP)
220kV IP Station	220kV Rajghat Station	I.G.Stadium	11	
220kV IP Station	220kV Rajghat Station	Minto Road	19	
220kV Park Street	220kV Naraina	Shankar Road	32	
220kV Park Street	N/A	Shastri Park C	31	
220kV Wazirabad	400kV Harsh Vihar	Ghonda	44	
220kV Wazirabad	N/A	Shastri Park E	17	
220kV Wazirabad	N/A	Sonia Vihar	40	
220kV Wazirabad	220kV Wazirabad	220kV Wazirabad	3	
220kV Patparganj	220kV Preet Vihar	Karkardooma	14	
220kV Patparganj	220kV Gazipur	Vivek Vihar	29	
<b>Total</b>			<b>257</b>	

<b>BYPL Critical Load</b>					
<b>DTL Source</b>	<b>Alternate DTL Source</b>	<b>BYPL Grid</b>	<b>Load in MW</b>	<b>Category</b>	
220kV IP Station	220kV Rajghat Station	DDU	14	BJP Headquarter/ Govt. Offices/ Railway station/ MCD civic centre/ Hospital/water pump VVIP area	
220kV IP Station	220kV Rajghat Station	Delhi Gate	16		
220kV Kashmeri Gate	220kV Rajghat Station	Fountain	14		
220kV IP Station	220kV Rajghat Station	Kamla Market	27		
220kV Park Street	220kV Rajghat Station	Motia Khan	40		
220kV Kashmeri Gate	220kV Rajghat Station	Town Hall	29		
220kV Geeta Colony	220kV Patparganj	Geeta Colony	41		
220kV Geeta Colony	220kV Wazirabad	Kailash Nagar	33		
220kV Patparganj	220kV Gazipur	Khichripur	27		
220kV Gazipur	220kV Patparganj	Kondli	16		
220kV Patparganj	220kV Gazipur	PPG GH-1	28		
400kV Harsh Vihar	220kV Patparganj	Nand Nagri	38		
<b>Total</b>			<b>323</b>		

**Exclusion of BYPL Super Critical and Critical Grids from DTL UFR for change in relay settings:**

- There are some BYPL Super critical and critical grids which has been included in UFR as per DTL islanding scheme in Annexure IV-A. The same has been depicted in table pertaining to BYPL as under :

<b>Frequency settings for DTL network Load shedding relays as per NRPC Guidelines and Revised Islanding Scheme (For 6261MW Peak Load)</b>											
S. No	S/Stn Name	48.8 Hz Flat	Relief in MW	48.6Hz Flat	Relief in MW	Below 49.9 Hz (SLOPE 0.1)	Relief in MW	Below 49.9 Hz (SLOPE 0.2)	Relief in MW	Below 49.9 Hz (SLOPE 0.3)	Relief in MW
1	220KV SOW					66KV Shastri Park-I	26				
						66KV Shastri Park-II	31				
2	220KV GEETA COLONY					33KV Kailash Nagar-I	19	33KV Geeta Colony-I	20		
						33KV Kailash Nagar-II	15	33KV Geeta Colony-II	20		
3	220KV PATPAR GANJ					66KV Vivek Vihar-I	0				
						66KV Vivek Vihar-II	0				
4	220KV GAZIPUR	66KV Vivek Vihar-I	39	66KV Kondli-I	24						
				66KV Kondli-II	22						
<b>Total</b>			<b>39</b>		<b>46</b>		<b>91</b>		<b>40</b>		<b>0.0</b>

<b>Super Critical</b>	
<b>Critical</b>	

**Operational arrangement for Delhi Islanding (Single Island as per 32nd Protection Subcommittee meeting held in NRPC on 30.11.2016):**

- Dadri-I is one of the costliest plants that is being made available to the Discoms in the NCT of Delhi. Accordingly, Dadri-I is the lowest in the Merit Order Despatch list and therefore, power has not been scheduled from Dadri-I for almost 10 months.
- In view of the above, Dadri -I remains inoperative and has a PLF of 30.46% for 2019-20 and of 9% for 2020-21.

- *In the existing scheme, Dadri-I has already completed 25 years of operation on 30.11.2020. By virtue of Regulation 17 of the CERC (Terms and Conditions for Tariff) Regulations, 2019 and in the absence of any arrangement between NTPC and BYPL, the PPA has lapsed on 30.11.2020 by operation of law. Accordingly, BYPL by its Communication(s) dated 30.11.2020 has requested NTPC, NRDL and SLDC not to schedule power from Dadri-I w.e.f. 01.12.2020. Similar Communications were also issued by other Discoms including BRPL and TPDDL, in this regard.*
- *A Draft Proposal dated 04.12.2020 issued by the Ministry of Power, Government of India (“MoP”) was forwarded to BYPL by the Government of NCT of Delhi for comments. By the Draft Proposal, the MoP has proposed a mechanism to enable States/ Discoms to either continue or exit from the PPA after completion of the term of the PPA i.e., beyond 25 years or a period specified in the PPA. BYPL is in the process of examining the Draft Proposal and would be submitting its comments to the Government of NCT of Delhi.*
- *In view of the above, Dadri-I should not be considered a part of the Islanding Scheme. Further as indicated in table below that without Dadri-I, there will be sufficient generation capacity in summer and winter months to cater super critical and critical loads.*
- *Further as suggested by NRLDC, generation from Rihand should be included in Delhi Island to make it reliable, as Rihand plant remains operative most of the time. Therefore there is requirement to suitably work out islanding scheme by taking other plants as suggested in NRPC 177th OCC.*
- *The stations chosen for Islanding scheme should have fast ramp up and lower lead time to start quickly in case of requirement, when islanding happens. This will ensure power availability for critical and super critical loads.*
- *There is huge variation in Delhi’s seasonal demand and therefore season-wise modelling should be done. It is suggested that the SLDC should conduct load flow studies for the entire NCT of Delhi considering peak and off-peak scenarios (seasonal and diurnal variation), with multiple combination of sources on the Delhi’s ring transmission structure (as proposed for Single Island). This would help in understanding the implications of voltage, reactive power and system stability aspects with different source combinations including connectivity of Rihand HVDC to facilitate generation from Rihand-Dadri bi-pole HVDC line which has a capacity of 1500 MW.*
- *Percentage on-bar entitlement of generating stations under islanding scheme will be different in summers and winters due to huge variation in Delhi’s seasonal demand. Therefore, modelling may be done as per different summer and winter share, from these stations.*
- *SLDC may explore the introduction of new flexible and fast ramping technologies like Battery Energy Storage System (BESS) at strategic locations for support in the islanding scheme.*
- *Generation sources which help contribute to meeting super-critical and critical loads in Delhi’s island are as follows:*

Generation Under Islanding Scheme				
Plants	As per proposed islanding scheme 2016	As per present Generation (12.12.2020)	Proposed Generation (MW)*	
			Summer's	Winter's
Pragati I	292	149	323	162
GT	132	41	276	46
Bawana	290	438	668***	334
Dadri II	1451	-	901	450
Dadri I		-	-	-
Dadri Gas	125	187	125	125
Jhajjar	916	-	919**	460
BTPS	298	-	-	-
<b>Total</b>	<b>3504</b>	<b>815</b>	<b>3213</b>	<b>1577</b>

Generation at Delhi periphery

\*\* Another 460 MW from 1 unit can be brought under cold start as per requirement

\*\*\* Additional equivalent capacity of 668 MW can be brought on bar from second module as per requirement

- Details of Super-critical and critical loads in Delhi's island are as follows:

DISCOM	Summer			Winter		
	Super Critical Load (MW)	Critical Load (MW)	Total	Super Critical Load (MW)	Critical Load (MW)	Total
BRPL	438	507	944	335	365	700
BYPL	257	323	680	159	191	350
TPDDL						
MES						
NDMC						
DMRC						
Railway						
<b>Total</b>						

### **BRPL Submission:-**

**Identification of BRPL Super critical and Critical Grids;** Based on the critical loads like Hospital, Water Treatment Plants, Important Building etc, BRPL has categorized the Grids amongst "Super Critical" and "Critical" excluding direct feeders emanating from DTL 220KV stations. The list of super critical and critical grids with load is as under: (Also enclosed as excel spreadsheet)

### **BRPL Super Critical Loads:**

All Loads in MW for 2019-20

DTL Source	BRPL Grid	Summer Peak	Summer Off Peak	Summer Average	Winter Peak	Winter Off Peak	Winter Average	Super Critical Category
		02.07.2019	1.4.2019	30.4.2019	31.12.2019	27.1.2020	23.11.2019	
		1535 Hrs	0357 Hrs	1900 Hrs	1045 Hrs	0317 Hrs	1000 Hrs	

220KV M.MOTH	33KV VSNL2	8	4	5	8	4	5	Airport(GMR), Railways, DMRC, BRPL Control Room, Water treatment plant(WTP), Sewage Pumping, Hospitals, Important data centres(Govt), Waste to energy plant etc
220KV R K PURAM	66KV VKJ B	45	10	34	43	11	16	
220KV IP	33KV SUPREEME COURT	2	2	2	1	1	1	
220KV M.MOTH	33KV NEHRU PLACE	24	7	15	15	4	8	
220KV M.MOTH	33KV SIRI FORT	19	5	18	15	4	7	
220KV M.MOTH	33KV D C SAKET	22	5	15	15	4	10	
220KV M.MOTH	33KV Balaji Estate	11	4	9	9	2	4	
220KV MEHERAULI	66KV Fatehpur Beri	9	4	7	9	3	6	
220KV MEHERAULI	66KV South Asian Univ	8	8	3	7	3	2	
220KV MEHERAULI	66KV Palam	15	15	5	8	6	3	
220KV OKHLA	33KV Nehru place ckt-2	13	13	2	2	7	2	
220KV RIDGE VALLEY	66KV Ridge VALLEY-ckt-1 & 2	81	81	35	81	111	31	
220KV SVR	66KV Jasola ckt-1 & 2	45	45	18	35	30	18	
220KV VASANT KUNJ	66KV IAAI PALM	27	27	15	19	11	7	
220KV VASANT KUNJ	11KV Indian Hospital	1	1	1	1	0	0	
220KV NJF	66KV DJB NJF ckt-1 & 2	53	53	15	23	35	9	
220KV NJF	66KV NWW	40	40	19	31	42	9	
220KV Naraina	Mayapuri ckt-1	15	15	10	13	10	7	
<b>Total</b>		<b>438</b>	<b>339</b>	<b>226</b>	<b>335</b>	<b>287</b>	<b>146</b>	

### BRPL Critical Loads:

All Load in MW for 2019-20

DTL Source	BRPL grid	Summer Peak	Summer Off Peak	Summer Average	Winter Peak	Winter Off Peak	Winter Average	Critical Category
		02.07.20 19 1535 Hrs	01.04.20 19 0357 Hrs	30.04.20 19 1900 Hrs	31.12.20 19 1045 hrs	27.1.202 0 0317 Hrs	23.11.20 19 1000 Hrs	
220KV IP	33KV NIZAMUDDIN (Bay-13)	13	4	5	8	3	5	
220KV IP	33KV KILOKARI 1	14	5	8	7	3	7	
220KV IP	33KV Kilokri Bay 25	11	4	8	8	2	5	
220KV IP	33KV Kilokri Bay 37	13	4	6	7	1	4	
220KV IP	33KV LAZPAT NAGAR (Bay-5)	13	3	11	5	0	4	
220KV IP	33KV KILOKARI (Bay-25)	16	2	6	10	6	1	
220KV LODHI RD	33KV DEFENCE COLONY	11	3	6	8	0	4	
220KV LODHI RD	33KV CBI Blding	13	4	11	7	2	4	Important
220KV LODHI RD	33KV ITPO	2	2	2	0	0	0	Buildings/Govt.
220KV LODHI RD	11KV Sewage T planr	2	2	2	2	0	1	Offices/Hospita
220KV M.MOTH	33KV SHIVALIK	21	8	1	9	5	10	I/Important
220KV M.MOTH	33KV PUSHP VIHAR GRID	6	3	3	8	1	4	Water Pump/
220KV M.MOTH	33KV MAJID MOTH	11	5	7	7	3	4	VVIP Area
220KV MEHERAUL	66KV Malviya Ng-1 and IGNOU	40	20	28	30	13	20	
220KV	11KV Andheria bagh-1	2	2	2	1	0	1	

MEHERAUL								
220KV OKHLA	33KV OKHALA PHASE 2 ckt 2	12	2	7	7	2	5	
220KV OKHLA	33KV OKHLA PH 1 ckt-1 and 2	19	4	10	12	4	7	
220KV SVR	66KV 11KV SEWAGE PUMPING	2	1	2	0	0	0	
400/220kV TBD	66KV Okhla ph-1	27	5	14	18	3	12	
400/220kV TBD	66KV MCIE	32	9	21	19	5	12	
220KV R K PURAM	33KV ADCHINI	21	4	11	18	5	6	
220KV R K PURAM	33KV MASJID MOTH	11	5	7	7	3	4	
220KV NJF	11KV feeder Booster Pumping	2	1	1	2	0	1	
220KV PPK-1	66KVBodella-1 T-off Pankhard	20	4	11	11	2	8	Important
220KV PPK-1	66KV G-7	6	3	8	10	1	6	Buildings/Govt.
220KV PPK-2	11KV feeder Pumping stn	2	1	1	2	0	1	Offices/Hospital
220KV PPK-2	66KV Hastal ckt-2	38	10	23	49	11	11	/Important
220KV PPK-2	66KV G-4	31	10	25	24	6	14	Water Pump/
220KV PPK-1	66KV G-6 PAPPANKALA	28	7	14	20	5	10	VVIP Area
220KV PPK-3	66KV G-7	16	3	7	12	2	6	
220KV Peeragarhi	33KV Pascimpuri ckt-2	27	8	6	20	2	12	
220KV Peeragarhi	33KV A-4 Paschim vihar	25	10	21	18	10	14	
<b>Tota l</b>		<b>507</b>	<b>160</b>	<b>292</b>	<b>365</b>	<b>100</b>	<b>204</b>	
<b>Total of Super Critical and Critical Load</b>		<b>944</b>	<b>498</b>	<b>518</b>	<b>700</b>	<b>387</b>	<b>350</b>	

**Exclusion of BRPL Super critical Grids from DTL UFR :**

- UFR complete list of BRPL need complete review as few feeders under critical/super critical category and nomenclature of feeders are also changed. The Same is attached as **annexure-A**

**(OCC may deliberate)**

**7. Implementation of Automatic Demand Management Scheme by Discoms.**

Refer S.No. 2.2 of 20th GCC MoM wherein NDMC had informed that their software for ADMS has been upgraded and under testing and work is linked with the IPDS project, for which efforts shall be made to complete at the earliest.

NDMC has informed in 02nd OCC meeting (2020-21)that the works related to ADMS are under process and expected to be completed by 30.09.2020.

In 07<sup>th</sup> OCC meeting, NDMC updated that, ADMS works are still under progress and no timeline was provided by NDMC for completion of undergoing ADMS works.

**It is requested to NDMC to give a timeline for the completion of ADMS works.**

**(Action by NDMC)**

### 8. Submission of break up energy consumption by the state.

In NRPC OCC meeting all SLDCs were requested to provide the break up energy consumption by the state by segregating the same from the billed data from DISCOMs in the format as prescribed below:

Category	Consumption by Domestic load	Consumption by Commercial load	Consumption by Agricultural load	Consumption by Industrial load	Traction supply load	Miscellaneous /Others
Month						

Report submission status:

DISCOM	BRPL	BYPL	TPDDL	MES	NDMC
Submitted up to	up to Sept-20	up to Sep-20	up to Oct-20	up to Sep-20	upto Oct-20*

**\*NDMC is requested to provide the details in Energy (MUs) not in Demand (MW).**

BRPL, BYPL and MES are requested to provide the details for Oct-2020.

**(Action by DISCOMs)**

### 9. Regular submission of progress of capacitor installation program by state utilities.

In 176<sup>th</sup> NRPC OCC meeting, the agenda was discussed for submission of progress of Capacitor installation programme by State utilities.

As per Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007 mandates for submission of multiple types of data to Central Electricity Authority in the format as specified in the regulations. One of the information pertains to the submission of Progress of Capacitor Installation Program by State utilities to RPCs which are thereafter required to compile and submit the data to CEA.

All the utilities are advised to furnish the information to NRPC Secretariat in the Format-35 of the said regulation latest by 10<sup>th</sup> of every month. The format 35 is as under.

In line with the NRPC directions SLDC needs to submit the capacitor progress report before 10<sup>th</sup> of every month. It is therefore requested to Discoms to submit the capacitor progress report before 5<sup>th</sup> day of every month.

**In 07<sup>th</sup> Delhi OCC meeting (Nov-2020) ,OCC advised all utilities to update and submit the details in prescribed format to the SLDC but SLDC has not received any information till date.**

**(Action by all Discoms)**



## 10. High voltage issues in Delhi network.

The High Voltage issues have been faced in Delhi System. This is because of decrease in power demand in Delhi area. During past winter season, it has been observed high voltage conditions and injection of reactive power to the grid resulting into payment of heavy penalty to be given by Delhi system to NRPC reactive account.

The details of NRPC reactive weekly account for Delhi from 05.10.20 to 30.11.20 are as under:

Week No.	From	To	Payable (Rs in Lakhs)	Receivable (Rs in Lakhs)
28	05.10.20	11.10.20	29.571	
29	12.10.20	18.10.20	37.851	
30	19.10.20	25.10.20	72.53	
31	26.10.20	01.11.20	100.57	
32	02.11.20	08.11.20	95.556	
33	09.11.20	15.11.20	120.466	
34	16.11.20	22.11.20	110.64	
35	23.11.20	29.11.20	92.076	
36	30.11.20	06.12.20	89.33	

Following steps were in practice to control the high voltage/ injection of reactive power.

- (i) Switching off the capacitors at all the Substations of Delhi.
- (ii) Transformer taps 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) Absorption of reactive power by generating units.

### Action Plan for Winter Preparedness 2020-21.

**i)** The tap positions of Transformers/ ICTs are required to optimize up to extent to control high voltage & reactive power injection in system.

The tap position of 220/66kV & 220/33kV Tx at DTL S/Stns shall be reviewed after detailed deliberation on inputs provided by Discoms and O&M Department of DTL.

**ii)** SLDC is opening the 220kV cables / lightly loaded lines in consultation with O&M deptt and as per deliberations of Delhi OCC meetings.

**iii)** SLDC is also opening 66KV /33kV feeders emanating from 220kV DTL substations as per list shared byDiscoms.

In 6th Delhi OCC, October 2020, high voltage & reactive power injection issue was deliberated and following corrective actions were advised :

- (i) All the Capacitor banks installed in DTL as well as DISCOMs should be switched Off.
- (ii) All the generators are advised not to inject MVAR in grid and should absorb MVAR particularly during high voltage condition to improve voltage profile of the Grid as per their capability curve.

(iii) DISCOMs 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.

(iv) DISCOMs were advised to share cases of high voltage conditions in substations directly with SLDC. Further, SLDC will instruct respective DTL substations to change tap position of Transformers if required.

(v) For switching of 220 kV level U/G cables/Ckts, OCC advised SLDC to not to keep Ckts under Off condition for long duration of time. OCC suggested for switching of U/G cable circuits on alternate basis.

In 07<sup>th</sup> Delhi OCC meeting (Nov-2020), SLDC requested DTL to expedite the process of tendering works and execution of project related to Reactors as suggested by CEA.

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

**It is requested to update the line of action taken by utilities to control the system voltage profiles and reactive power injection to the grid.**

**(OCC members may deliberate)**

#### **11. Mock trial of Black-start Exercise of GT (IPGCL):**

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

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

The black start exercise of Unit-3 & Unit-2 of GTPS was earlier carried out on 13.04.18 and 20.02.19 respectively .

**IPGCL (GTPS) may please give schedule to SLDC and OS Department of DTL so that a mock start exercise can be done accordingly.**

**(OCC may deliberate)**

#### **7. Long/Recent Outage/Breakdown of Elements in Delhi power system.**

Members may update the latest status of following Long/Recent Outage/Breakdowns of elements in Delhi Power system as under:

S.N	Element's Name	DISCOM/ DTL	Date and Time of outage	Status of outage as on 14.12.2020
•	33 kV RIDGE VALLEY - KHEBAR LANE CKT.-II	BRPL	01.06.2019	'Y' PH. Single cable faulty. BRPL informed that the agenda related to handover this ckt to MES to be put up before Steering Committee. BRPL informed that the issue will be taken up in upcoming steering committee meeting.

•	66 kV NANGLOI W. WORKS CKT.- MUNDKA 400 kV)	BRPL	26.08.2020	'B' PH. cable faulty. There are multiple faults in Ckt & BRPL checking for feasibility of cross bonding.
•	33kV LODHI ROAD - EXHIBITION GR. CKT.-II	BRPL	29.06.2019	'B' PH. SINGLE CABLE FAULTY
•	220kV TRAUMA CENTRE - 33kV IIT CKT.	BRPL	08.12.2020	'B' & 'B'PH. SINGLE CABLE FAULTY
•	220kV MEHRAULI - 66kV V.KUNJ 'D'BLOCK CKT.-I	BRPL	09.10.2020	UNDER SHUT DOWN
•	33kV I/C-I AT WAZIRPUR -3	TPDDL	25.10.2020	4 NO'S CABLE FAULTY OUT OF 09 NO'S CABLE
•	220kV SHALIMARBAGH - 33kV JAHANGIRPURI CKT.	TPDDL	08.12.2020	'R' PH. CABLE FAULTY
•	220kV GOPALPUR - 33kV CIVIL LINE CKT.	TPDDL	13.12.2020	CABLE NO. 2 FAULTY
•	66kV NARELA-Bhalaswa Ckt-I & II	TPDDL	10.11.2020	<b>Shutdown for conductor replacement &amp; Tower erection works.</b>
•	66kV GUEST HOUSE CKT- 220kV PARK STREET -	NDMC	01.11.2020	'B' & 'B'PH. CABLE FAULTY
•	33kV BAY - 4 (IP - ELECTRIC LANE)	NDMC	02.11.2020	'R' PH. CABLE FAULTY
•	220kV SHALIMARBAGH - DMRC CKT.-II	DMRC	27.02.2020	'R' PH. CABLE FAULTY
•	220/66 kV 160 MVA PR.TR.- II AT R.K. PURAM	DTL	06.03.2020	TX tripped on Buchholz & found faulty. Tx sent to workshop OEM, for repairing works. It has been dispatched & is on the way. <b>Tx is expected to be energized by the end of Dec-20.</b>
•	220kV MASJID MOTH - MAHARANI BAGH CKT.-II	DTL	16.10.2020	CABLE JOINT DAMAGED. <b>Ckt is expected to be energized by 30.12.2020</b>
•	AT NAJAFGARH : 66kV CAPACITOR BANK -1,2 & 3	DTL	01.10.2020, 09.10.2020	SHUTDOWN FOR Dismantling & Augmentation WORK. <b>Expected to be energized by Dec-2020</b>
•	AT PATPARGANJ: - 100MVA PR.TR.-IV	DTL	20.10.2020	SHUTDOWN FOR SHIFTING OF TRANSFORMER WORK. <b>Tx is expected to be energized by 20.12.2020</b>
•	400kV BALLABHGARH - TUGLAKABAD CKT.- I&II	DTL	28.11.2020	SHUT DOWN FOR CONDUCTOR REPAIRING WORK BETWEEN TOWER NO. 288-289. <b>Expected by 30.12.2020.</b>

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