

I/33514/2024



सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत संचार विकास प्रभाग
Power Communication Development Division

CEA Case No. : RAJ-720		
Induced Voltage (IV) calculation for 765 kV D/C Khetri Narela Transmission Line [Length-170.127 km]– Regd.		
S. No	Reference No.	Dated
(i)	PGCIL: 04-02/PTCC/2704-A/STU-II/1767	01.08.2022
(ii)	PGCIL: NR-I/PNTL/Khetri-Narela/TLC/TW03/157	29.12.2023
(iii)	PGCIL e-Mail	31.01.2024
(iv)	BSNL: DET/PTCC/ND/DV-10236/RAJ-1428/2023-2024/	07.08.2023
(v)	Northern Railway: 342-SIG/1/PTCC/2023-24/11/04	15.11.2023
(vi)	North Western Railway: SG/158/NWR/PTCC/937	08.11.2023
(vii)	Defense: B/46937/Sigs7(b)/3519	17.11.2023

The PTCC proposal submitted vide reference (i), (ii) & (iii) has been examined. The LF induction on Block and Telecom circuits of BSNL, Northern Railway & North Western Railway with respect to details furnished vide above reference (iv), (v) & (vi) has been computed. The voltage likely to be induced on paralleling Block and Telecom circuits of BSNL, Northern Railway & North Western Railway under Single Line to Ground fault condition are enclosed at Annexure-I, II & III respectively. The screening factors as applicable have been considered. DG Signals, MoD has issued No Objection Certificate (NOC) vide reference (vii).

EPR zone for 220 kV proposed S/S is mentioned below:

Name of the proposed Substation	Half diagonal distance , D/2 (mts)	Fault Current I (KA)	Resistance of Earth Mat, R (ohms)	d (mts) at 430 V	d (mts) at 650 V	d (mts) at 7kV	d (mts) at 10kV
765 kV Narela S/s	239	44.1	0.069	1452	880	N.A	N.A

As per the Telecom Details submitted by BSNL vide above reference (iv), no telephone exchange of BSNL is falling within the EPR zone of proposed 765 kV Narela Substation.

Taking above into consideration, necessary action regarding issuance of PTCC approval for the subject cited transmission line may be taken under intimation to this office.

Encl.: As above

Chief Engineer

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To,

1.	Divisional Engineer (PTCC), Northern Zone	BSNL, O/o GM (North), QA & Inspection Circle D-Tax Building, Eastern Court, Janpath New Delhi-110001	
2.	GM (S&T)	North Western Railway, Headquarter Office, Room No. 136, First Floor, Near Jawahar Circle, Jaipur - 302017	
3.	GM (S&T)	Northern Railway Baroda House, Delhi	
4.	Executive Director (NR-I), POWERGRID	POWERGRID RHQ, NR-I, Faridabad	Copy for information.

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ANNEXURE-I

CEA Case No.: RAJ-720 Name of the Power line: 765 kV D/C Khetri Narela Transmission Line			Map Scale : 1 cm= 500 m Total Length : 170.127 km S.R. Value : 3000 Ohm-cm		
S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.

BSNL: DET/PTCC/ND/DV-10236/RAJ-1428/2023-2024/ Dated 07.08.2023

Affected Blocks & Telecom Circuits Details

1.	Ghardana Khurd to Ghardana Kalan				Out of parallelism
2.	Ghardana Khurd to Rajpura				Out of parallelism
3.	Ghardana Khurd to Ghardana Khurd				Out of parallelism
4.	Puhaniya to Puhaniya				Out of parallelism
5.	Puhaniya to Sanwlod				Out of parallelism
6.	Puhaniya to Malnana				Out of parallelism
7.	Buhana to Buhana				Out of parallelism
8.	Buhana to Hasas				Out of parallelism
9.	Buhana to Manpura				Out of parallelism
10.	Pancheri Kalan to Pancheri Kalan	2.35	0.0213	19750	421
11.	Pancheri Kalan to Pancheri Khurd				IV less than 430 V
12.	Pancheri Kalan to Buirr				IV less than 430 V
13.	Bhalotu to Bhalotu				Out of parallelism
14.	Bhaloth to Meahpur				IV less than 430 V
15.	Kosla to Jhal urillar				IV less than 430 V
16.	Jhal to Juddi				Out of parallelism
17.	Nahar to Lullhi				Out of parallelism
18.	Nahar to Gajarwas				Out of parallelism
19.	Nahar Distributor to Bharangal				Out of parallelism
20.	Nahar to Nahar Distributor				Out of parallelism

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21.	Nahar Distributor to Koharpur	Out of parallelism			
22.	Koharpur to Lilodh	2.30	0.005	14150	71
23.	Bahu to Kharpur	Out of parallelism			
24.	Kharpur to Gorla	IV less than 430 V			
25.	Bahu to Jhorli	IV less than 430 V			
26.	Khurshid Nagar to Jhalari	IV less than 430 V			
27.	Bawa to Bawa Gouthdar	IV less than 430 V			
28.	Bawa to Karolo	Out of parallelism			
29.	Naroli to Bishowa	Out of parallelism			
30.	Bawa to Nayagaon	IV less than 430 V			
31.	Bawa to Garhi	IV less than 430 V			
32.	Bawa to Bahala	Out of parallelism			
33.	Matanhail Village, 100 pair	Out of parallelism			
34.	Matanhail Village, 200 pair	Out of parallelism			
35.	Dhakla Village	Out of parallelism			
36.	Mudhra Village	Out of parallelism			
37.	Salhawas Village	Out of parallelism			
38.	NTPC Jadhli Camp	Out of parallelism			
39.	CLP Jadhli Camp	Out of parallelism			
40.	Bawanato to Auchandi Copper cable	Out of parallelism			
41.	Qutubgarh to Auchandi Copper cable	2.77	0.055	29540	1625

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ANNEXURE-II

CEA Case No.: RAJ-720 Name of the Power line: 765 kV D/C Khetri Narela Transmission Line			Map Scale : 1 cm= 500 m Total Length : 170.127 km S.R. Value : 3000 Ohm-cm		
S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.

Northern Railway Letter No: 342-SIG/1/PTCC/2023-24/11/04 Dated 15.11.2023

Affected Blocks & Telecom Circuits Details

1	Kharawar R/s to Sampla R/s	-Out of Parallelism-			
2	Sampla R/s to Asaudh R/s	4.32	0.0065	25450	165
3	Asaudh R/s to Bahadurgarh R/s	-Out of Parallelism-			
4	Bahadurgarh R/s to Gheora R/s	-Out of Parallelism-			
5	Gheora R/s to Nangloi R/s	-Out of Parallelism-			
6	Halombi Kalan R/s to Narela R/s	-Out of Parallelism-			
7	Narela R/s to Rathdhana R/s	-Out of Parallelism-			

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ANNEXURE-III

CEA Case No.: RAJ-720 Name of the Power line: 765 kV D/C Khetri Narela Transmission Line			Map Scale : 1 cm= 500 m Total Length : 170.127 km S.R. Value : 3000 Ohm-cm		
S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.

North Western Railway Letter No: SG/158/NWR/PTCC/937 Dated 08.11.2023

Affected Blocks & Telecom Circuits Details

1	Satnali R/s to Zerpur Pali R/s	-Out of Parallelism-			
2	Zerpur Pali R/s to Mahendargarh R/s	-Out of Parallelism-			
3	Mahendargarh R/s to Kanina Khas R/s	10.50	0.008	17350	139
4	Kanina Khas R/s to Dahina Zainabad R/s	-Out of Parallelism-			
5	Charkhi Dadri R/s to Jharli R/s	Out of Parallelism-			
6	Jharli R/s to Mohanbari R/s	Out of Parallelism-			
7	Mohanbari R/s to Sudhrana R/s	2.30	0.0023	17200	40
8	Sudhrana R/s to Kosli R/s	Out of Parallelism-			
9	Kosli R/s to Jatusana R/s	Out of Parallelism-			