



सत्यमेव जयते



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

| | | |
|---|--|--------------|
| CEA Case No.: KNK-1028 | | |
| Induced Voltage (IV) calculation for PTCC proposal of 220 kV DC line on MC towers (partially OH and partially UG) by making LILO of Circuit -1 of 220 kV Narendra-Belagavi DC line to 220/110 kV Mache SS (OH= 12.974 km, UG =0.503 km) (13.477 km)- regd. | | |
| S.No. | Reference | Dated |
| (i) | KPTCL: CEE/SLDC/PTCC/F3509/8850-52 | 27.01.2023 |
| (ii) | KPTCL: Email EMD parameters | 20.02.2026 |
| (iii) | BSNL: SR-PTCC/F-3509/5 | 09.02.2026 |
| (iv) | South Western Railway: SG/SWR/PTCC/F-3509/2485 | 21.02.2023 |
| (v) | Defense: B/46937/Sigs 7(b)/3192 | 29.03.2023 |

The PTCC proposal submitted vide above reference(s) (i) and (ii) has been examined. The low frequency induction on Telecom circuits of BSNL and Block & Telecom circuits of South Western Railway with respect to details furnished vide above references (iii) and (iv) has been computed. The voltage likely to be induced on paralleling Telecom circuits of BSNL and Block & Telecom circuits of South Western Railway under Single Line to Ground fault condition are enclosed at Annexure-I and Annexure -II respectively. The screening factors as applicable have been considered.

ADG (Telecommunications) has issued No Objection Certificate (NOC) vide reference (v) above (attached as Annexure –III).

EPR Zones for proposed substations are mentioned below.

| Name of the proposed SS | Half Diagonal Distance, D/2 (mts) | Fault Current, I (kA) | Resistance of earthmat, R (Ohms) | d (mts) at 430 V | d (mts) at 650 V | d (mts) at 7 kV | d (mts) at 10 kV |
|---------------------------|-----------------------------------|-----------------------|----------------------------------|------------------|------------------|-----------------|------------------|
| 220/110/33/11 kV Mache SS | 148.5 | 32.5 | 0.38 | 4117 | 2673 | 113 | 35 |

As per the details submitted by BSNL vide reference (iii) above, no telephone exchanges are falling in the EPR zone of the proposed substation.

Taking above into consideration, necessary action for issuance of PTCC route approval (RAC) shall be taken under intimation to this office in the stipulated period as specified in PTCC Manual and subsequent CLPTCC meetings.

As per the decision taken in 111th and 112th CLPTCC meeting, necessary instructions for “*Deemed Energization approval*” shall be specified while issuing RAC

Encl.: As above

Chief Engineer

To,

| | | | |
|----|---|--|----------------------|
| 1. | Divisional Engineer (PTCC), Southern Zone | BSNL, Inspection Circle, 2nd Floor, Sanchar Complex, WMS Compound, Jayanagar 5th Block, 9th Main, 47th Cross, Bangalore-560041 | |
| 2. | PCSTE (South Western Railway) | Principal Chief Signal & Telecom Engineer, Rail Soudha, Gadag Road, Hubballi-580020 | |
| 3. | Member (Power), KPTCL | Chief Engineer Electricity, SLDC #28, Race Course Road, Bengaluru-560009 | Copy for information |

ANNEXURE-I

| CEA Case No.: KNK-1028 Name of the Power line: 220 kV DC line on MC towers (partially OH and partially UG) by making LILO of Circuit -1 of 220 kV Narendra-Belagavi DC line to 220/110 kV Mache SS (OH= 12.974 km, UG =0.503 km) | | | Map Scale : 1 cm= 500 m Total Length: 13.477 km S.R. Value :20000 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 Letter No: SR-PTCC/F-3509/5 Dated 09.02.2026

BSNL Main EXCHANGE (F-3509)

| | | |
|-------|-----------------------------------|--------------------|
| E-EN1 | Main Exchange to Channamma Circle | IV less than 430 V |
| E-EN2 | Main Exchange to Channamma Circle | |
| E-EN3 | Main Exchange to Channamma Circle | |
| E-ES1 | Main Exchange to Vaccine Depo | |
| E-ES2 | Main Exchange to Vaccine Depo | |
| E-ES3 | Main Exchange to Vaccine Depo | |

Macche Exchange – P – (F-3509)

| | | | | | |
|------|-----------------------|--------------------|--------|-------|-----|
| P-P1 | Macche Exchange to P1 | 1.75 | 0.0064 | 26895 | 172 |
| P-P2 | Macche Exchange to P2 | IV less than 430 V | | | |
| P-P3 | Macche Exchange to P3 | | | | |
| P-P4 | Macche Exchange to P4 | | | | |

ANNEXURE-II

| CEA Case No.: KNK-1028 | | | | | |
|---|-------------------------|---|---------------------------------|---|----------------------|
| Name of the Power line: 220 kV DC line on MC towers (partially OH and partially UG) by making LILO of Circuit -1 of 220 kV Narendra-Belagavi DC line to 220/110 kV Mache SS (OH= 12.974 km, UG =0.503 km) | | Map Scale : 1 cm= 500 m Total Length: 13.477 km S.R. Value: 20000 Ohm-cm | | | |
| S.No. | Telecom. Details | Length of Parallelism in Km. | Mutual Coupling in Ohms. | Effective Fault current in Amps. | I.V in Volts. |

| South Western Railway Letter No: SG/SWR/PTCC/F-3509/2485 Dated 21.02.2023 | | | | | |
|--|---------|-------------------------------|----------|-------|-----|
| 1. | KNP-DUR | 0.15 | 0.000042 | 27195 | 1 |
| 2. | DUR-BGM | 8.3 | 0.0112 | 23543 | 264 |
| 3. | BGM-SXB | 1.2 | 0.00024 | 23056 | 6 |
| 4. | SXB-SBH | Outside IV consideration zone | | | |

Signals - 7

General Staff Branch

Integrated HQ of MoD, (Army)

DHQ PO, New Delhi - 110011

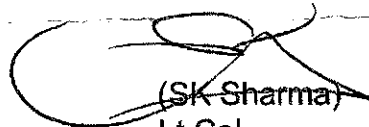
B/46937/Sigs 7(b)/3192

9 Mar 2023

Office of the Chief Engineer Electricity,
Karnataka Power Transmission Corporation Limited
State Load Despatch Centre,
#28, R.C. Cross Road,
Bengaluru - 560 009

**PTCC PROPOSAL FOR CONSTRUCTION OF 220KV LILO LINE ON MC
TOWERS (PARTIALLY OH LINE AND UG LINE (ON PROPOSED 220KV MK
HUBLI-MACHE DC LINE CORRIDOR) FROM EXISTING 220KV NARENDRA-
BELAGAVI DC LINE IN B/W T.NO. 251-250 (CIRCUIT-1) TO PROPOSED
220/110KV MACHE (UPGRADATION OF 110/11KV SS) SS IN BELAGAVI TALUK
AND DISTRICT**

1. Refer your letter No CEE/SLDC/PTCC/F3509/-8850-52 dt 27 Jan 2023 (copy att).
2. **No Objection Certificate (NOC) is accorded** based on inputs provided as per Map sheets received vide your letter mentioned above.
3. Documents alongwith map sheets (in original) are returned herewith for your further necessary action.


(SK Sharma)
Lt Col
GSO 1 (Comn)
for ADG T

Enclosures : (As above)

Copy to :-

✓ The Director (PTCC), CEA
Power Communication Development Division
NRPC Complex, 18-A Shaheed Jeet Singh Marg
Katwaria Sarai, New Delhi - 110016

- for information

The DET(PTCC), Northern Zone
Bharat Sanchar Nigam Limited
O/o PGM (North), QA & Inspection Circle,
D-Tax Building, Eastern Court, Janpath
New Delhi-110001

Diy
A.D

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