

I/32372/2023



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. : KER-326		
Induced Voltage (IV) calculation in respect of PTCC proposal for 220 kV D/C line from 400 kV PGCIL Pallikkara substation to proposed 220 kV Aluva substation (11.1 km) - regd.		
S. No	Reference No.	Dated
(i)	KSEB: DCE (TS)/EE1/AEE1/PTCC/Aluva-Pallikkara/17-18/2566	19.03.2018
(ii)	KSEB: DCE (TS)/EEII/TA/PTCC/Aluva-Pallikkara/22-23/1458	10.01.2023
(iii)	KSEB: Email	22.02.2023
(iv)	BSNL: SR-PTCC/SKL 2082/06	10.07.2019
(v)	Southern Railway: W.384/3/4/528 received with KSEB letter dated 22.07.2021	11.04.2018
(vi)	Defense: B/46937/Sigs 7(b)/2406	02.06.2021

The PTCC proposal and details submitted vide reference (i), (ii) and (iii) have been examined. The LF induction on communication circuits of BSNL and Southern Railway with respect to details furnished vide above references (iv) and (v) have been computed. The voltage likely to be induced on paralleling communication cables of BSNL and Southern Railway under Single Line to Ground fault condition are enclosed at Annexure-I & II respectively. The screening factors as applicable have been considered. Vide reference (vi) above, DG Signals, MoD has issued No Objection Certificate (NOC) (enclosed 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 kV Aluva S/S	102.8	20	0.25	1092.5	687.9	NIL	NIL

As per the details submitted by BSNL, Aluva Exchange is falling within the 430 V EPR zone of the proposed substation.

Taking above into consideration, necessary action for issuance of PTCC route approval may be taken under intimation to this office.

Encl.: As above

Director

To,

1.	Divisional Engineer (PTCC), Southern Zone	BSNL, Inspection Circle, 1st Floor, Raj Bhavan Exchange No. 26, Sardar Patel Road, Guindy, Chennai-600032
2.	General Manager (S&T)	Southern Railway, Head Quarters Office, S&T Branch, Chennai - 600003

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3.	Deputy Chief Engineer (Tech)	KSEB, O/o Chief Engineer Transmission South Region, 3 rd Floor, Vidyuthi Bhavanam, Pattom, Thiruvananthapuram - 695004	<i>Necessary measures may be taken for ensuring protection of BSNL Aluva Exchange from EPR</i>
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ANNEXURE-I

CEA Case No.: KER-326		Map Scale : 1 cm= 500 m			
Name of the Power line: 220 kV D/C line from 400 kV PGCIL Pallikkara substation to proposed 220 kV Aluva substation		Total Length : 11.1 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/SKL 2082/06 Date: 10.07.2019					
Nedumbassery (NBS) Exchange					
1	Exchange to P 41	IV less than 430 V			
2	Exchange to P 44				
3	Exchange to P 51				
4	Exchange to P 52				
5	Exchange to P 53				
Sreemoolanagaram (SMN) Exchange					
1	Exchange to P 21	IV less than 430 V			
2	Exchange to P 22				
3	Exchange to P 31				
4	Exchange to P 32				
5	Exchange to P 33				
6	Exchange to P 41				
7	Exchange to P 42				
8	Exchange to P 51				
9	Exchange to P 52				
10	Exchange to P 61				
11	Exchange to P 62				
12	Exchange to P 63				

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13	Exchange to P 64	IV less than 430 V			
Thottakkattukara Exchange (TTK)					
1	Exchange to P 30	IV less than 430 V			
2	Exchange to P 75				
3	Exchange to P 36				
4	Exchange to P 72				
5	Exchange to P 39				
6	Exchange to P 66				
7	Exchange to P 67				
8	Exchange to P 35				
9	Exchange to P 32				
10	Exchange to P 73				
11	Exchange to P 37				
12	Exchange to P 71				
13	Exchange to P 34				
14	Exchange to P 64				
15	Exchange to P 31				
16	Exchange to P 33				
Aluva Exchange (ALY)					
1	Exchange to P 52	IV less than 430 V			
2	Exchange to P 57				
3	Exchange to P 55				
4	Exchange to P 51				
5	Exchange to P 58				
6	Exchange to P 59				
7	Exchange to P 69				
8	Exchange to P 50				

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9	Exchange to P 62	IV less than 430 V			
10	Exchange to P 64	1.5	0.0357	17311	618
11	Exchange to P 21	IV less than 430 V			
12	Exchange to P 22	0.8	0.0317	18549	588
13	Exchange to P 70	1.2	0.0475	17832	847
14	Exchange to P 63	IV less than 430 V			
15	Exchange to P 61				
16	Exchange to P 40				
17	Exchange to P 43				
18	Exchange to P 53				
19	Exchange to P 80				
20	Exchange to P 81				
21	Exchange to P 44				
22	Exchange to P 54				
	Marampally Exhcnage (MPV)				
1	Exchange to P 31	IV less than 430 V			
2	Exchange to P 32				
3	Exchange to P 33				
4	Exchange to P 51				
5	Exchange to P 52				
6	Exchange to P 41				
7	Exchange to P 45				
8	Exchange to P 44				
9	Exchange to P 42				
10	Exchange to P 21				
11	Exchange to P 23				
12	Exchange to P 24				

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13	Exchange to P 43	IV less than 430 V			
	Choondy Exchange (CDY)				
2	Exchange to P 21	IV less than 430 V			
3	Exchange to P 22				
4	Exchange to P 23				
5	Exchange to P 30				
6	Exchange to P 86				
7	Exchange to P 46				
8	Exchange to P 67				
9	Exchange to P 72				
10	Exchange to P 73	IV less than 430 V			
11	Exchange to P 74				
12	Exchange to P 55				
13	Exchange to P 71				
14	Exchange to P 88				
15	Exchange to P 89				
16	Exchange to P 31				
17	Exchange to P 32				
18	Exchange to P 33				
19	Exchange to P 34				
20	Exchange to P 35				
21	Exchange to P 45				
	Kalamassery Exchange (KMSR)				
1	Exchange to P 55	IV less than 430 V			
2	Exchange to P 45				
3	Exchange to P 56				
4	Exchange to P 51				

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5	Exchange to P 52	IV less than 430 V							
6	Exchange to P 57								
7	Exchange to P 53								
8	Exchange to P 48								
9	Exchange to P 41								
10	Exchange to P 28								
11	Exchange to P 29								
12	Exchange to P 21								
13	Exchange to P 24								
14	Exchange to P 74								
15	Exchange to P 78								
16	Exchange to P 27								
17	Exchange to P 85								
18	Exchange to P 25								
19	Exchange to P 63								
20	Exchange to P 76								
21	Exchange to P 31								
22	Exchange to P 36								
23	Exchange to P 84								
24	Exchange to P 64								
25	Exchange to P 75								
26	Exchange to P 60								
27	Exchange to P 67								
	Cusat Exchange (CUS)								
1	Exchange to P 32					IV less than 430 V			
2	Exchange to P 53								
3	Exchange to P 39								

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4	Exchange to P 65	IV less than 430 V			
5	Exchange to P 38				
6	Exchange to P 68				
7	Exchange to P 30				
8	Exchange to P 66				
Kangarappady Exchange (KGP)					
1	Exchange to P 24	IV less than 430 V			
2	Exchange to P 23				
3	Exchange to P 58				
4	Exchange to P 22				
5	Exchange to P 25				
6	Exchange to P 69				
7	Exchange to P 68				
8	Exchange to P 67				
9	Exchange to P 66				
Kizhakkambalam Exchange (KZM)					
1	Exchange to P 25	2.7	0.0744	12433	925
2	Exchange to P 27	3.4	0.0822	12153	999
3	Exchange to P 23	1.4	0.0346	16647	576
4	Exchange to P 44	IV less than 430 V			
5	Exchange to P 32				
6	Exchange to P 82				
7	Exchange to P 58	2.2	0.0473	19408	918
8	Exchange to P 51	IV less than 430 V			
9	Exchange to P 52				
10	Exchange to P 22				
11	Exchange to P 25	Same as S.no. 1 above			

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12	Exchange to P 27	Same as S. no. 2 above			
13	Exchange to P 23	Same as S. no. 3 above			
14	Exchange to P 72	IV less than 430 V			
15	Exchange to P 57				
16	Exchange to P 55				
17	Exchange to P 81				
18	Exchange to P 53				
Pattimattom Exchange (PMM)					
1	Exchange to P 31	IV less than 430 V			
2	Exchange to P 32				
3	Exchange to P 41				
4	Exchange to P 42				
5	Exchange to P 43				
6	Exchange to P 21				
7	Exchange to P 81				
8	Exchange to P 22				
9	Exchange to P 23				
10	Exchange to P 61				
11	Exchange to P 62				
12	Exchange to P 63				
Thrikkakara Exchange (TKK)					
1	Exchange to P 22	IV less than 430 V			
2	Exchange to P 23				
3	Exchange to P 24				
4	Exchange to P 25				
5	Exchange to P 26				
6	Exchange to P 27				

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7	Exchange to P 28	IV less than 430 V							
8	Exchange to P 29								
9	Exchange to P 31								
10	Exchange to P 32								
11	Exchange to P 34								
12	Exchange to P 35								
13	Exchange to P 36								
14	Exchange to P 41								
15	Exchange to P 42								
16	Exchange to P 43								
17	Exchange to P 44								
18	Exchange to P 45								
19	Exchange to P 46								
20	Exchange to P 47								
21	Exchange to P 48								
22	Exchange to P 49								
23	Exchange to P 51								
24	Exchange to P 52								
25	Exchange to P 54								
26	Exchange to P 55								
Ambalamugal Exchange (ABM)									
1	Exchange to P 20					IV less than 430 V			
2	Exchange to P 21								
3	Exchange to P 22								
4	Exchange to P 23								
5	Exchange to P 25								
6	Exchange to P 26								

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7	Exchange to P 27	IV less than 430 V
8	Exchange to P 30	
9	Exchange to P 31	
10	Exchange to P 32	
11	Exchange to P 33	

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ANNEXURE-II

CEA Case No.: KER-326 Name of the Power line: 220 kV D/C line from 400 kV PGCIL Pallikkara substation to proposed 220 kV Aluva substation			Map Scale : 1 cm= 500 m Total Length : 11.1 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.
Southern Railway Letter No: W.384/3/4/528 Date: 11.04.2018					
1	Idapalli – Kalamaserri	0.2	0.00003	13154	0.4
2	Kalamaserri – Aluva	3.0	0.0039	15897	62
3	Aluva - Angamali	0.4	0.00005	13074	1

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Tele : 23019746

KER-326

Directorate General of Signals
Signals 7
General Staff Branch
Integrated HQ of MoD, (Army)
DHQ PO, New Delhi – 110011

B/46937/Sigs 7(b)/2406/

02 Jun 2021

Office of the Chief Engineer (Transmission South)
Kerala State Electricity Board Limited
Vydyuthi Bhavanam, Pattom
Thiruvananthapuram-695 004, Kerala

**CONSTRUCTION OF 220KV DC LINE FROM 400KV PGCIL PALLIKKARA
SUBSTATION TO PROPOSED 220KV SUBSTATION, ALUVA-PTCC
CLEARANCE-REG.**

1. Refer your letter No DCE(TS)/EE1/AEE1/PTCC/ Aluva-Pallikkara/20-21/1779 dt 08 Mar 2021 (copy att).
2. No Objection Certificate (NOC) is accorded based on inputs provided vide Map sheets received under your letter mentioned above.
3. Documents alongwith map sheets (in original) are returned herewith for your further necessary action.

(A Rawat)
Lt Col
GSO 1 (Comn)
for SO-in-C

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

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

for information

