



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**  
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| <b>CEA Case No. : KNK-976</b>   |   |              |
|---|---|--------------|
| <b>Induced Voltage (IV) calculation for PTCC proposal of 400 kV D/C Udupi to Kasaragod Transmission Line (Length- 115.47 km)- Regd.</b> |   |              |
| <b>S. No</b>  | <b>Reference No.</b>  | <b>Dated</b> |
| (i)   | M/s Udupi Kasargode Transmission Ltd: UKTL/2020-2021/20200730/STAT/PTCC/163         | 30.07.2021   |
| (ii)  | M/s Udupi Kasargode Transmission Ltd: UKTL/2021-2022/20220215/Com./TL/STAT/PTCC/311 | 15.02.2022   |
| (iii)   | M/s Udupi Kasargode Transmission Ltd: UKTL/2023-2024/20240305/KA/TL/Com./706        | 05.03.2024   |
| (iv)  | UKTL E-mail   | 30.09.2024   |
| (v)   | BSNL: SR-PTCC/SKT3011/  | 02.08.2023   |
| (vi)  | Southern Railway: W.384/3/6/4(KAR-KER)  | 27.09.2022   |
| (vii)   | South Western Railway: SG/SWR/PTCC/UKTL/2416  | 06.12.2022   |
| (viii)  | Defense: B/46937/Sigs 7(b)/3051   | 08.12.2022   |

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

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 |
|--------------------------|-----------------------------------|-----------------------|----------------------------------|------------------|------------------|-----------------|------------------|
| 400/220 kV Kasaragod GIS | 107                               | 13.5                  | 0.5                              | 1581             | 1010             | N.A             | N.A              |

As per the details submitted by BSNL vide reference (v) 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 shall be taken under intimation to this office.

As per the decision taken in 111<sup>th</sup> and 112<sup>th</sup> 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, 1st Floor, Raj Bhavan Exchange No. 26, Sardar Patel Road, Guindy, Chennai-600032 |
| 2. | PCSTE                                     | South Western Railway, Rail Soudha, Gadag Road, Hubballi - 20   |
| 3. | Project Head                              | Udupi Kasargode Transmission Ltd., 4 <sup>th</sup> floor, ABCO Trade Center, Kottara Chowki, Mangalore    |

**ANNEXURE-I**

| <b>CEA Case No.:</b> KNK-976   |                               |                                     | <b>Map Scale</b> : 1 cm= 500 m    |   |                      |
|--|-------------------------------|-------------------------------------|-----------------------------------|---|----------------------|
| <b>Name of the Power line:</b> 400 kV D/C Udupi to Kasaragod transmission line |                               |                                     | <b>Total Length</b> : 115.47 km   |   |                      |
|  |                               |                                     | <b>S.R. Value</b> : 30,000 Ohm-cm |   |                      |
| <b>S.No.</b>   | <b>Telecom. Details</b>       | <b>Length of Parallelism in Km.</b> | <b>Mutual Coupling in Ohms.</b>   | <b>Effective Fault current in Amps.</b> | <b>I.V in Volts.</b> |
| <b>BSNL Letter No</b> SR-PTCC/SKT 3011/ <b>Date:</b> 02.08.2023                |                               |                                     |                                   |   |                      |
| <b>KARNATAKA Section</b>   |                               |                                     |                                   |   |                      |
| <b>I</b>   | <b>ADYANADKA EXCHANGE</b>     |                                     |                                   |   |                      |
| 1  | Adyanadka Exge to Kuddupadavu |                                     |                                   |   | IV Less than 430 V   |
| 2  | Adyanadka Exge to Sardaka     |                                     |                                   |   |                      |
| 3  | Adyanadka Exge to Thorankatte |                                     |                                   |   |                      |
| 4  | Adyanadka Exge to Moodambail  |                                     |                                   |   |                      |
| 5  | Adyanadka Exge to Sarvu       |                                     |                                   |   |                      |
| <b>2</b>   | <b>PUNCHA EXCHANGE</b>        |                                     |                                   |   |                      |
| 1  | Puncha Exge to Periyal Thadka |                                     |                                   |   | IV Less than 430 V   |
| 2  | Puncha Exge to Kepu           |                                     |                                   |   |                      |
| 3  | Puncha Exge to Kepu           |                                     |                                   |   |                      |
| 4  | Puncha Exge to Thorankatte    |                                     |                                   |   |                      |
| 5  | Puncha Exge to Thorankatte    |                                     |                                   |   |                      |
| <b>3</b>   | <b>VITTAL EXCHANGE</b>        |                                     |                                   |   |                      |
| 1  | Vittal Exge to Kambelabettu   |                                     |                                   |   | IV Less than 430 V   |
| 2  | Vittal Exge to Kambelabettu   |                                     |                                   |   |                      |
| 3  | Vittal Exge to Pandur         |                                     |                                   |   |                      |
| 4  | Vittal Exge to Ukkuda         |                                     |                                   |   |                      |

|   |  |                    |
|---|--|--------------------|
| 5 | Vittal Exge to Govt. ITI                 |                    |
| 6 | Vittal Exge to Mangalpadavu              |                    |
| 4 | <b>Kolanadu EXCHANGE</b>                 |                    |
| 1 | Kolanadu Exge to Saletur                 |                    |
| 2 | Kolanadu Exge to Vitlapadnur             |                    |
| 3 | Kolanadu Exge to Vitlapadnur             | IV Less than 430 V |
| 4 | Kolanadu Exge to Kullal                  |                    |
| 5 | Kolanadu Exge to Kullal                  |                    |
| 5 | <b>Kalladka EXCHANGE</b>                 |                    |
| 1 | Kalladka Exge to Surekumeru              |                    |
| 2 | Kalladka Exge to Golthamajal             |                    |
| 3 | Kalladka Exge to Kalladka                | IV Less than 430 V |
| 4 | Kalladka Exge to Kalladka                |                    |
| 5 | Kalladka Exge to Narahari                |                    |
| 6 | <b>Manchi Exchange</b>                   |                    |
| 1 | Manchi Exge to Manchi Junction           |                    |
| 2 | Manchi Exge to Kukkaje                   |                    |
| 3 | Manchi Exge to Salethoor                 |                    |
| 4 | Manchi Exge to Salethoor                 | IV Less than 430 V |
| 5 | Manchi Exge to Bolanthoor                |                    |
| 6 | Manchi Exge to Monthimar                 |                    |
| 7 | <b>Panemangalore Exchange</b>            |                    |
| 1 | Panemangalore Exge to Melkar             |                    |
| 2 | Panemangalore Exge to Melkar             |                    |
| 3 | Panemangalore Exge to Sharda High School |                    |
| 4 | Panemangalore Exge to PETE               | IV Less than 430 V |

|    |                                    |                    |
|----|------------------------------------|--------------------|
| 5  | Panemangalore Exge to Panolibail   |                    |
| 6  | Panemangalore Exge to Bolangady    |                    |
| 8  | <b>Vogga Exchange</b>              |                    |
| 1  | Vogga Exge to Church               | IV Less than 430 V |
| 2  | Vogga Exge to Bambila              |                    |
| 3  | Vogga Exge to Madda                |                    |
| 4  | Vogga Exge to Kelagina Vogga       |                    |
| 5  | Vogga Exge to Kelagina Vogga       |                    |
| 9  | <b>Vamadapadavu Exchange</b>       |                    |
| 1  | Vamadapadavu Exge to Post Office   | IV Less than 430 V |
| 2  | Vamadapadavu Exge to Post Office   |                    |
| 3  | Vamadapadavu Exge to Mavinakatte   |                    |
| 4  | Vamadapadavu Exge to Mavinakatte   |                    |
| 10 | <b>Karnire Exchange</b>            |                    |
| 1  | Karnire Exge to Palimar Side       | IV Less than 430 V |
| 2  | Karnire Exge to Kinnigoli Side     |                    |
| 3  | Karnire Exge to Kinnigoli Side     |                    |
| 11 | <b>Kinnigoli Exchange</b>          |                    |
| 1  | Kinnigoli Exge to Mulki Side       | IV Less than 430 V |
| 2  | Kinnigoli Exge to Moorukaveri Side |                    |
| 3  | Kinnigoli Exge to Moorukaveri Side |                    |
| 4  | Kinnigoli Exge to Niddodi Side     |                    |
| 12 | <b>Mulki Exchange</b>              |                    |
| 1  | Mulki Exge to Kinnigoli Side       | IV Less than 430 V |
| 2  | Mulki Exge to Kinnigoli Side       |                    |
| 3  | Mulki Exge to Kinnigoli Side       |                    |

|           |                                      |                    |
|-----------|--------------------------------------|--------------------|
| 4         | Mulki Exge to Mulki Town             |                    |
| 5         | Mulki Exge to Mulki Town             |                    |
| <b>13</b> | <b>Kateel Exchange</b>               |                    |
| 1         | Kateel Exge to Bajpe Side            |                    |
| 2         | Kateel Exge to Bajpe Side            | IV Less than 430 V |
| 3         | Kateel Exge to Kinnigol Side         |                    |
| <b>14</b> | <b>Muchur Exchange</b>               |                    |
| 1         | Muchur Exge to Muchur Town           |                    |
| 2         | Muchur Exge to Ganjimata Side        | IV Less than 430 V |
| 3         | Muchur Exge to Ganjimata Side        |                    |
| <b>15</b> | <b>Kaikamba Exchange</b>             |                    |
| 1         | Kaikamba Exge to Gurupura Side       |                    |
| 2         | Kaikamba Exge to Gurupura Side       |                    |
| 3         | Kaikamba Exge to Ganjimata Side      | IV Less than 430 V |
| 4         | Kaikamba Exge to Ganjimata Side      |                    |
| 5         | Kaikamba Exge to Ganjimata Side      |                    |
| <b>16</b> | <b>Kinnikambala Exchange</b>         |                    |
| 1         | Kinnikambala Exge to Kaikamba Side   |                    |
| 2         | Kinnikambala Exge to Kaikamba Side   |                    |
| 3         | Kinnikambala Exge to Yedapadavu Side | IV Less than 430 V |
| 4         | Kinnikambala Exge to Yedapadavu Side |                    |
| 5         | Kinnikambala Exge to Yedapadavu Side |                    |
| <b>17</b> | <b>Kuppepadavu Exchange</b>          |                    |
| 1         | Kuppepadavu Exge to Yedapadavu Side  |                    |
| 2         | Kuppepadavu Exge to Yedapadavu Side  | IV Less than 430 V |
| 3         | Kuppepadavu Exge to Yedapadavu Side  |                    |
| <b>18</b> | <b>Shirva Exchange</b>               |                    |

|                       |                                |                    |
|-----------------------|--------------------------------|--------------------|
| 1                     | Shirva Exge to Pilarka Side    | IV Less than 430 V |
| 2                     | Shirva Exge to Shankarpur Side |                    |
| <b>19</b>             | <b>Uchila Exchange</b>         | IV Less than 430 V |
| 1                     | Uchila Exge to Padubidri Side  |                    |
| 2                     | Uchila Exge to Udupi Side      |                    |
| <b>20</b>             | <b>Paniyur Exchange</b>        | IV Less than 430 V |
| 1                     | Paniyur Exge to Uchila Side    |                    |
| 2                     | Paniyur Exge to Pilar Side     |                    |
| <b>21</b>             | <b>Padubudri Exchange</b>      | IV Less than 430 V |
| 1                     | Padubidri Exge to Udupi Side   |                    |
| 2                     | Padubidri Exge to Hejamadi     |                    |
| 3                     | Padubidri Exge to Nandikoor    |                    |
| <b>22</b>             | <b>Hejamadi Exchange</b>       | IV Less than 430 V |
| 1                     | Hejamadi Exge to Padubidri     |                    |
| 2                     | Hejamadi Exge to Padubidri     |                    |
| <b>23</b>             | <b>Pilar Exchange</b>          | IV Less than 430 V |
| 1                     | Pillar Exge to Nandikoor       |                    |
| 2                     | Pillar Exge to Belman          |                    |
| <b>24</b>             | <b>Palimar Exchange</b>        | IV Less than 430 V |
| 1                     | Palimar Exge to Nandikoor      |                    |
| 2                     | Palimar Exge to Belman         |                    |
| <b>KERELA Section</b> |                                |                    |
| <b>I</b>              | <b>Perla Exchange</b>          | IV Less than 430 V |
| 1                     | Exge to P21                    |                    |
| 2                     | Exge to P23                    |                    |
| 3                     | Exge to P24                    |                    |
| 4                     | Exge to P25                    |                    |

|            |                                 |      |        |       |                    |
|------------|---------------------------------|------|--------|-------|--------------------|
| 5          | Exge to P22                     |      |        |       |                    |
| 6          | Exge to P28                     |      |        |       |                    |
| <b>II</b>  | <b>Yethadka Exchange</b>        |      |        |       |                    |
| 1          | Exge to P21                     |      |        |       |                    |
| 2          | Exge to P22                     |      |        |       | IV Less than 430 V |
| 3          | Exge to P23                     |      |        |       |                    |
| 4          | Exge to P24                     |      |        |       |                    |
| <b>III</b> | <b>Kinnigar Exchange</b>        |      |        |       |                    |
| 1          | Exge to P23                     |      |        |       | IV Less than 430 V |
| 2          | Exge to P24                     |      |        |       |                    |
| 3          | Exge to P25                     |      |        |       |                    |
| <b>IV</b>  | <b>Vaninagar Exchange</b>       |      |        |       |                    |
| 1          | Exge to P31                     |      |        |       | IV Less than 430 V |
| 2          | Exge to P31                     |      |        |       |                    |
| <b>V</b>   | <b>Perdala Exchange</b>         |      |        |       |                    |
| 1          | Exge to P22                     |      |        |       | IV Less than 430 V |
| 2          | Exge to P23                     |      |        |       |                    |
| 3          | Exge to P24                     |      |        |       |                    |
| 4          | Exge to P25                     |      |        |       |                    |
| <b>VI</b>  | <b>Kalichanadukkam Exchange</b> |      |        |       |                    |
| 1          | Exge to P21                     | 1.25 | 0.0562 | 13600 | 765                |
| 2          | Exge to P23                     |      |        |       | IV Less than 430 V |
| 3          | Exge to P31                     | 3.0  | 0.097  | 13500 | 1310               |
| 4          | Exge to P42                     |      |        |       | IV Less than 430 V |
| <b>5</b>   | Exge to P52                     |      |        |       | IV Less than 430 V |
| <b>VII</b> | <b>Puthukunnu Exchange</b>      |      |        |       |                    |
| 1          | Exge to P21                     |      |        |       |                    |



|             |                           |                    |        |       |     |
|-------------|---------------------------|--------------------|--------|-------|-----|
| 2           | Exge to P22               | IV Less than 430 V |        |       |     |
| 3           | Exge to P23               | 1.25               | 0.0562 | 14550 | 818 |
| 4           | Exge to P25               | IV Less than 430 V |        |       |     |
| <b>VIII</b> | <b>Beemanadi Exchange</b> |                    |        |       |     |
| 1           | Exge to P21               |                    |        |       |     |
| 2           | Exge to P23               |                    |        |       |     |
| 3           | Exge to P22               |                    |        |       |     |
| 4           | Exge to P31               |                    |        |       |     |
| <b>5</b>    | Exge to P32               | IV Less than 430 V |        |       |     |
| <b>IX</b>   | <b>Kayyur Exchange</b>    |                    |        |       |     |
| 1           | Exge to P21               |                    |        |       |     |
| 2           | Exge to P32               | IV Less than 430 V |        |       |     |
| <b>X</b>    | <b>Parappa Exchange</b>   |                    |        |       |     |
| 1           | Exge to P21               |                    |        |       |     |
| 2           | Exge to P22               |                    |        |       |     |
| 3           | Exge to P32               |                    |        |       |     |
| 4           | Exge to P42               |                    |        |       |     |
| <b>5</b>    | Exge to P31               | IV Less than 430 V |        |       |     |
| <b>XI</b>   | <b>Attengam Exchange</b>  |                    |        |       |     |
| 1           | Exge to P21               |                    |        |       |     |
| 2           | Exge to P22               |                    |        |       |     |
| 3           | Exge to P23               |                    |        |       |     |
| 4           | Exge to P51               |                    |        |       |     |
| <b>5</b>    | Exge to P31               |                    |        |       |     |
| <b>6</b>    | Exge to P41               |                    |        |       |     |
| 7           | Exge to P42               |                    |        |       |     |
| 8           | Exge to P43               | IV Less than 430 V |        |       |     |

|             |                             |                    |
|-------------|-----------------------------|--------------------|
| 9           | Exge to Inner zone Pillar   |                    |
| <b>XII</b>  | <b>Ambalathara Exchange</b> |                    |
| 1           | Exge to P21                 |                    |
| 2           | Exge to P22                 | IV Less than 430 V |
| 3           | Exge to P31                 |                    |
| 4           | Exge to P32                 |                    |
| <b>5</b>    | Exge to P33                 |                    |
| <b>XIII</b> | <b>Rajapuram Exchange</b>   |                    |
| 1           | Exge to P21                 |                    |
| 2           | Exge to P22                 | IV Less than 430 V |
| 3           | Exge to P23                 |                    |
| <b>XIV</b>  | <b>Muliyar Exchange</b>     |                    |
| 1           | Exge to P21                 |                    |
| 2           | Exge to P22                 |                    |
| 3           | Exge to P23                 | IV Less than 430 V |
| 4           | Exge to P24                 |                    |
| <b>5</b>    | Exge to P41                 |                    |
| <b>6</b>    | Exge to P42                 |                    |
| 7           | Exge to P31                 |                    |
| 8           | Exge to P32                 |                    |
| 9           | Exge to P33                 |                    |
| <b>XV</b>   | <b>Kuttikkol Exchange</b>   |                    |
| 1           | Exge to P21                 |                    |
| 2           | Exge to P22                 | IV Less than 430 V |
| 3           | Exge to P31                 |                    |
| 4           | Exge to P32                 |                    |
| <b>5</b>    | Exge to P33                 |                    |

|              |                          |                    |
|--------------|--------------------------|--------------------|
| <b>6</b>     | Exge to P41              |                    |
| <b>XVI</b>   | <b>Bedaka Exchange</b>   |                    |
| 1            | Exge to P21              |                    |
| 2            | Exge to P22              |                    |
| 3            | Exge to P24              | IV Less than 430 V |
| 4            | Exge to P32              |                    |
| <b>5</b>     | Exge to P34              |                    |
| <b>6</b>     | Exge to P35              |                    |
| 7            | Exge to P36              |                    |
| <b>XVII</b>  | <b>Mulleria Exchange</b> |                    |
| 1            | Exge to P21              |                    |
| 2            | Exge to P22              |                    |
| 3            | Exge to P23              |                    |
| 4            | Exge to P31              | IV Less than 430 V |
| <b>5</b>     | Exge to P41              |                    |
| <b>6</b>     | Exge to P51              |                    |
| 7            | Exge to P52              |                    |
| 8            | Exge to P61              |                    |
| <b>XVIII</b> | <b>Nekraje Exchange</b>  |                    |
| 1            | Exge to P21              |                    |
| 2            | Exge to P22              |                    |
| 3            | Exge to P23              |                    |
| 4            | Exge to P31              | IV Less than 430 V |
| <b>5</b>     | Exge to P32              |                    |
| <b>6</b>     | Exge to P33              |                    |
| 7            | Exge to P41              |                    |
| <b>XIX</b>   | <b>Belur Exchange</b>    |                    |

|   |             |
|---|-------------|
| 1 | Exge to P21 |
|---|-------------|

IV Less than 430 V

**ANNEXURE-II**

| <b>CEA Case No.:</b> KNK-976   |                         |                                     | <b>Map Scale</b> : 1 cm= 500 m    |   |                      |
|--|-------------------------|-------------------------------------|-----------------------------------|---|----------------------|
| <b>Name of the Power line:</b> 400 kV D/C Udupi to Kasaragod transmission line |                         |                                     | <b>Total Length</b> : 115.47 km   |   |                      |
|  |                         |                                     | <b>S.R. Value</b> : 30,000 Ohm-cm |   |                      |
| <b>S.No.</b>   | <b>Telecom. Details</b> | <b>Length of Parallelism in Km.</b> | <b>Mutual Coupling in Ohms.</b>   | <b>Effective Fault current in Amps.</b> | <b>I.V in Volts.</b> |

| <b>SOUTH WESTERN RAILWAY Letter No: SG/SWR/PTCC/UKTL/2416 Date: 06.12.2022</b> |   |                    |        |      |     |
|--|---|--------------------|--------|------|-----|
| 1.   | NRJ- KBPR Section   | Out of Parallelism |        |      |     |
| 2.   | KBPR- Neralakatte R/s Section<br>(Note: This Section is within 8 km boundary from proposed transmission line route) | 3.0                | 0.0057 | 9350 | 53  |
| 3.   | Neralakatte R/s to Kalladka R/s<br>(Note: Transmission Line is crossing this section)                               | 5.5                | 0.0197 | 9100 | 180 |
| 4.   | Kalladka R/s to Farngipet R/s<br>(Note: This Section is within 8 km boundary from proposed transmission line route) | 2.5                | 0.0076 | 8900 | 68  |
| 5.   | BNTL- PADIL Section   | Out of Parallelism |        |      |     |