

## Chapter-10 Transmission lines (Bare conductor and underground/Insulated cable)

**10.1 Transmission through bare conductor(s):** As a general principle, where routing of transmission lines through the forest areas is unavoidable, these should be aligned in such a way that it involves the least number of trees cutting, and as far as possible, the route alignment through forest areas should not have any line deviation. The following table gives the width of Right of Way (RoW), clearance below each conductor, and minimum clearance between conductors for laying transmission line of different voltages.

Transmission Voltage	Width of Right of Way (Meter)	Width clearance below each conductor or conductor bundle for stringing purpose (meter)	Minimum clearance between conductor and trees (Meters)
11Kv	7	Not required	2.6
33KV	15	Not required	2.8
66KV	18	Not required	3.4
110KV	22	Not required	3.7
132KV	27	Not required	4.0
220KV	35	Not required	4.6
400KV S/C vertical delta configuration	46	3 twin bundle, 5 triple bundle	5.5
400 KV D/C	46	7	
+/- 500KV HVDC	52		7
765 KV S/C (With delta configuration)	64	7 quadruple bundle 10 hexagonal bundle	9
765 KV D/C	67		
1200 KV	89	To be decided	13

In case of the demand for reduction in the width of Right of Way (RoW) of transmission lines in forest areas in the cases where Aerial Bunched Cable (ABC) are used in place of overhead lines, it is clarified that as per definitions in Measures relating to Safety and Electric Supply, Regulations, 2010 conductor is defined as bare or insulated and as such the vertical & horizontal clearance specified in Regulation 61 have to be maintained for both bare and insulated conductors like ABC etc.

To prevent death of animals like elephants due to electrocutions the distribution companies shall preferably use ABC or underground cables in forest areas. In case of the overhead lines, the clearance above ground of the lower conductor of 11kv and 33 KV overhead lines should

be as per the CEA regulation 58(3) and 58(4) or above maximum trunk height of the elephant, whichever higher.

**10.2 Transmission through insulated cable:** The norms/ standards for laying underground insulated cables through forest areas shall be as below:

<b>Lines Voltage</b>	<b>Trench Width</b>	<b>Trench Depth</b>
33 KV	600 mm	1200 mm
11 KV	300 mm	900 mm

However, for laying double circuit (D/C) underground cables through forest areas trench width shall be twice the afore-mentioned width stipulated for the single circuit cable.

**10.3.** Compensatory afforestation (CA) and Net Present Value (NPV) will be regulated as per the concerned guidelines.