

SURGE WITHSTAND VOLTAGES OF 25KV ELECTRIFICATION EQUIPMENT

The current minimum clearance for new electrification schemes is 100mm. There is potential for large costs savings to be accrued if clearances can be reduced below 100mm. This would be possible if it could be shown that surge voltages on the overhead equipment never exceeds a voltage much below the 100kV required to flash over the bridge insulator.

The report discusses an investigation undertaken to examine the potential of reducing clearances by measuring the flashover voltage of a range of electrification equipment, to find the minimum flashover voltage on the system and the ascertaining how often this particular piece of equipment has flashed over in service.

The report concludes that:

- Provided it can be shown that rolling stock arc gaps rarely operate due to surge voltages, the maximum withstand voltage necessary for overhead equipment is 83kV.
- Many pieces of equipment have clearances larger than necessary, i.e. have flashover voltages higher than that of the weakest equipment, which could be reduced with subsequent savings in cost.