

Electrical safety

2. Our view of the risk

The rail network in the UK obtains its electrical power from the National Grid or Distribution Network Operators (DNOs) such as UK Power Networks or Northern PowerGrid. This is then distributed through electrical assets to both Overhead Line contact systems and Conductor rails, these assets typically include:



High and Low voltage Switchgear



Transformers, to change from high voltage to lower voltage levels



Rectifiers, to convert from ac electricity to dc electricity



Cables, to distribute the electricity

The asset life of components will vary. Factors influencing this include the maintenance strategy applied and the environment in which the assets are located. The balance, type and age of assets is different for each dutyholder.

The electrical conductors on the contact systems are uninsulated and as such, unintended contact with these dangerous parts will result in an individual receiving an electrical shock. This has the potential to result in life changing or fatal injuries being inflicted.

Catastrophic failure of assets on electrical systems can lead to an uncontrolled release of energy

that will have the potential to inflict life changing or fatal injuries to individuals. Where reliance is placed on rules and procedures to control risks, it is important that these are understood by everyone, and that adequate monitoring and assurances activities take place to confirm understanding and embedment.

In addition, the failure of electrical assets can lead to the loss of power to trains and introduce secondary risks. For example, a failure of overhead line equipment will mean a loss of power and a train may become stranded. The electricity supply will need to be turned off and made safe. Subsequently there may be a need to detrain and the associated risks with carrying out this activity mitigated. There have been examples of passengers becoming frustrated when there are long delays and trying to leave a train before the environment has been made safe.

- ← Previous Electrical safety
- → Next 3. The law