

## TUTORIAL N° 7

# New aspects of earthing system design Optimization by Quantified Risk Analysis

### Background

Late 2018 the CIGRE/CIRED joint working group B3.35 published their brochure on “Substation earthing system design optimization through the application of quantified risk analysis”. Based on this report new aspects for assessment and optimization of earthing systems are available. This is an important basis for the planning and the asset management in distribution systems.

### Aim of the tutorial

The tutorial will introduce and explain the new approach of risk-based earthing system assessment and design. For this reason, the tutorial will highlight the legal requirements, the existing procedures of earthing system design and show the necessary steps and data to apply a risk-based assessment and design. Special attention is given to different methods of neutral grounding in distribution systems and measurements for verification of earthing systems.

### Content

1. Safety earthing philosophy and international standards
2. Legal requirements and risk management including probability assessment
3. Motivation and work done so far in the international context
4. Case studies in distribution systems

### Expected benefits

Participants will gain an improved understanding of:

- Principals of earthing system design in distribution systems
- Relevant standards and test procedures
- First steps to execute estimation procedure in risk based design
- Discussion with international experts

### Who should attend

Engineers with responsibility in asset management.

Engineers to enter the field of earthing design and assessment.

## Support material

A copy of all the presentation material used in the tutorial will be supplied to delegates (electronic version).

## About the presenter(s)

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