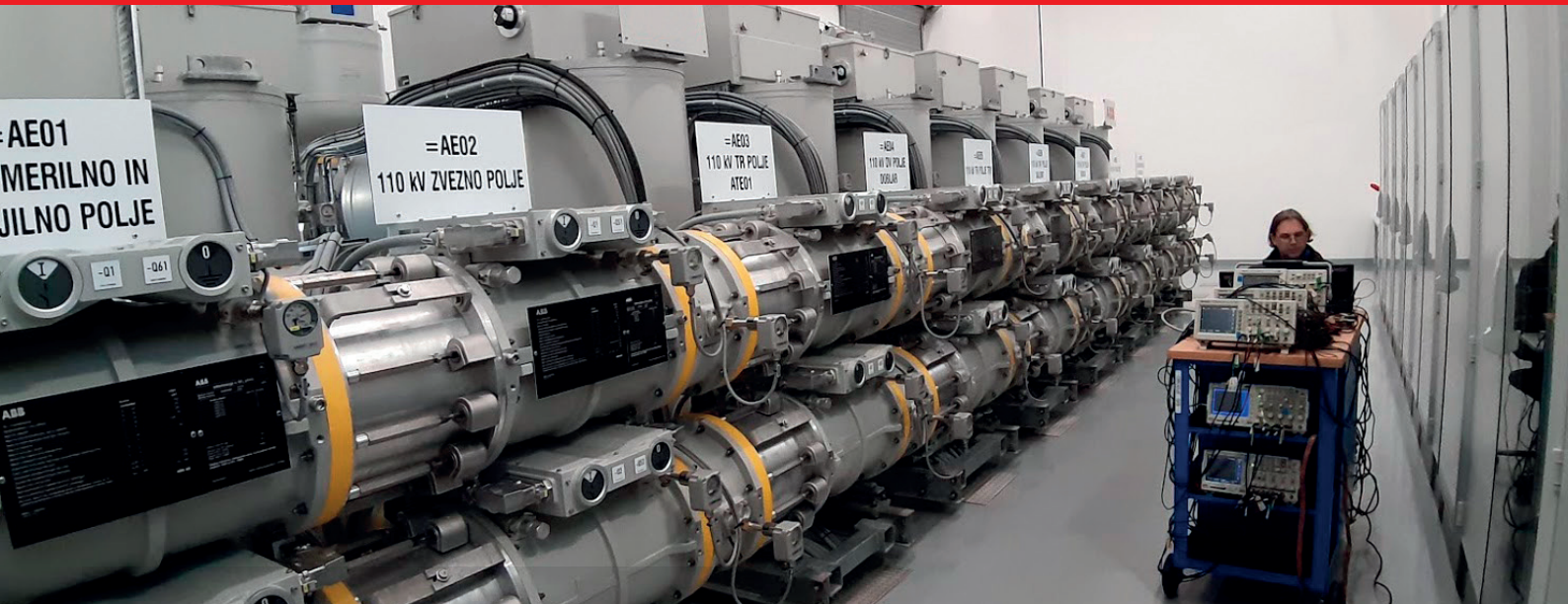


Department for Environmental Impacts of Electric Power Facilities



Experts at the Department for Environmental Impacts of Electric Power Facilities carry out research, measurements, consulting, supervision and expert assessments and opinions in the following fields: earthing, electromagnetic compatibility, electromagnetic fields, short circuits and protection, noise, corrosion of grounding systems, illumination of electric power structures and calculations of inductive impacts of electric power system facilities and other infrastructural systems.

Our work encompasses electric power system devices (e.g. electric power substations, overhead power lines), power plants, infrastructural facilities (gas pipelines, railway, base stations) and other industrial facilities.

EARTHING

- ▶ Dimensioning of earthing systems of electric power facilities, power lines and other objects,
- ▶ measurements, analyses and modelling of soil resistivity,
- ▶ measurements and test of galvanic joints, touch voltage and potential distribution,
- ▶ verification, testing and measurements of lightning protection system and low voltage installations,
- ▶ consulting on effective safety measures for mitigation of affected grounding systems,
- ▶ systematic approach to completion of inadequate earthing and lightning protection systems.

ELECTROMAGNETIC COMPATIBILITY (EMC)

- ▶ Consultations, supervision and measurements for electromagnetic compatibility of devices and systems,
- ▶ electromagnetic disturbances research in electric power and industrial facilities,
- ▶ situation analysis of electromagnetic compatibility and its provision in facilities,
- ▶ inspection of executed works and conformity with best EMC engineering practices,
- ▶ measurements of radio frequency disturbances of electric power facilities and lines,
- ▶ interference test of a system functionality.



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ELECTROMAGNETIC FIELDS (EMF)

- ▶ Measurements and analyses of electric and magnetic fields,
- ▶ calculations of electric and magnetic fields based on 3D electromagnetic models,
- ▶ system research of electric and magnetic fields (transformer stations, overhead power lines, cable lines ...),
- ▶ consultation in planning and implementation of measures to reduce electromagnetic fields,
- ▶ establishing the conformity with environmental and other legislation in this area,
- ▶ implementation of assessments, expert evaluations and reports on environmental impacts from EMF aspect,
- ▶ monitoring standpoints provided by the scientific community in protection of people against electromagnetic fields.



SHORT CIRCUIT AND PROTECTION

- ▶ Calculation of short circuits on all voltage levels,
- ▶ calculation of relevant currents for the design of earthing system,
- ▶ management of neutral point earthing in distribution and transmission networks,
- ▶ dimensioning of HV cable screens,
- ▶ managing issues with induced quantities in HV cable screens,
- ▶ consulting on cable screen earthing,
- ▶ calculation and measurements of HV overhead power lines/cable electrical parameters,
- ▶ parameter analysis of distance and overcurrent protection in transmission and distribution networks,
- ▶ reconstruction analysis of real events.

NOISE

- ▶ Noise measurements in the natural, living and working environment,
- ▶ noise calculations in the natural and living environment based on 3D acoustical models,
- ▶ system research of noise caused by corona on HV overhead power lines,
- ▶ consultation in planning and implementation of anti-noise measures,
- ▶ implementation of assessments, expert evaluations and reports on environmental impacts from noise aspect,
- ▶ warranty and control measurements of noise.

LIGHTING

- ▶ Illumination measurements in the natural, living and working environment,
- ▶ 3D model calculations for existing illumination engineering and reconstruction needs,
- ▶ illumination planning,
- ▶ assessment of illumination impacts on the environment.

CORROSION OF METAL GROUNDING SYSTEMS

- ▶ Research of stray currents caused by D.C. railway traction,
- ▶ consultation with regard to optimum planning of facilities with regard to stray currents,
- ▶ corrosion potential measurements of metal underground systems,
- ▶ measurements, analyses and proposals of measures for reducing stray currents,
- ▶ evaluation of A.C. corrosion likelihood,
- ▶ proposals and consultation in planning and implementation of protection measures.

CALCULATIONS OF INTERFERENCE OF ELECTRIC POWER SYSTEM FACILITIES AND OTHER INFRASTRUCTURAL SYSTEMS

- ▶ Research of inductive impacts of electric power system facilities and other infrastructural systems,
- ▶ consultation in planning electric power and infrastructural facilities with regard to inductive coupling,
- ▶ calculations of inductive, conductive and capacitance coupling,
- ▶ measurements and analyses of mutual couplings of existing infrastructure,
- ▶ proposals and consultation in planning and implementation of protection measures.



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