



Selected projects – power system calculation and analysis



Grid Measurement & Analysis

Our team of elite specialists at **Gridman** has participated in more than 200 international or domestic projects, including the following:

2012:

- Review of design and implementation of flexible coupling into stator windings of hydrogenerator HG2 of pumped storage power plant Ružín, Slovakia (02/2012)
- Proposal of diesel generator for backup power supply in Sykes Slovakia, s.r.o. (06/2012).
- Assessment of costs incurred for the reconstruction of the small water power plants in East Slovakia (07/2012).
- Study of the impact of shutdowns of selected generators on production of paper mill factory in Mondi SCP, a.s. (09/2012).
- Analysis of causes of power losses decrease in distribution system network VSD, a.s. (10/2012).

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2013:

- Analysis of big asynchronous generator connection to internal distribution system of Cement Mill Holcim (01/2013).
- Calculation of short-circuit currents in heating plant TEKO a.s. (03/2013).
- Analysis of electrical connection between parts TEKO₁ and TEKO₂ in heating plant TEKO a.s. (04/2013).
- Calculation of instantaneous values of maximum short-circuits currents for purposes of GCB proposal in Continental Matador Púchov, a.s. (10/2013).
- Analysis of electric power ratios in railway substation Nové Zámky and Štúrovo and proposal of basic technical solution for improving of electric power quality (11/2013).
- Technical and legislative framework for solving power system quality problems in transmission system of Slovak republic (12/2013).
- Determination of generator outage causes in heating plant TENERGO Slovensko a.s. – Dunajská Streda (12/2013).

2014:

- Proposal of special compensation device for new carbide furnaces in Fortischem a.s., Nováky, Slovakia (03/2014).
- Calculation of maximum short-circuit currents in CCPP Obajana, Nigeria (05/2014).
- Calculations of minimum short-circuit currents in CCPP Obajana, Nigeria (05/2014).
- Calculation of earth-fault currents in CCPP Obajana, Nigeria (05/2014).
- Review of short-circuit calculations in industrial power system of Sochor Mill, Kladno, Czech Republic(08/2014).
- Proposal of surge arresters in selected parts of high voltage network in Prakoenerg spol. s r.o. (09/2014).
- Calculations of minimum short-circuit currents in CPP FFBL Pakistan (10/2014).
- Transient stability calculation in CPP FFBL Pakistan (10/2014).
- Calculation of instantaneous values of short-circuits currents for purposes of GCB proposal in CPP FFBL Pakistan (11/2014).
- Analysis of measurement accuracy of Capacitive Voltage Transformers and determination of its impact on reliability of electric power transmission in conditions of transmission system operator (12/2014).
- Assessment of possibility of transformer replacement in Slovnaft a.s. (12/2014).

2015:

- Calculation of minimum short-circuit currents in 22 kV network of Slovakia Railway System (node Čierna nad Tisou) (01/2015).
- Assessment of switching phenomena in company Slovakia Steel Mills Strážske, Slovakia (01/2015).
- Assessment of capacitor condition and assessment of their exchange in refinery Slovnaft a.s. (03/2015).
- Analysis of short-circuit currents and motor start-up conditions of asynchronous motors M11 203A and MC1201 in substation HT3 in refinery Slovnaft a.s. (04/2015).
- Analysis of switching phenomena in paper mill factory Mondi SCP Ružomberok, a.s. (04/2015).
- Analysis of causes of compensation device destruction in railway substation TNS Zohor (06/2015).
- Analysis of causes of bushing destruction in substation Horná Ždaňa 400/110 kV (09/2015).

2016:

- Short-circuit calculations in distribution system of U.S. Steel Košice, s.r.o. (01/2016).
- Analyses of optimal protection system of 110kV substation against internal faults (02/2016).
- Analysis of power outages in GETRAG FORD Transmissions Slovakia, s.r.o. and proposal of remedial actions (02/2016).
- Analysis of power outages of CO₂ compressor in Duslo Šaľa, a.s. (04/2016).
- Island operation of internal distribution system of refinery Slovnaft a.s. (05/2016).
- Study of grounding systems requirements and lightning protection requirements for substations, high-voltage and extra-high-voltage power lines as the basis for the creation of an internal standard SEPS a.s. (07/2016).
- Proposal of protective island automatic for TG₃ in electrical network of Duslo Šaľa, a.s. (10/2016).
- Calculation of maximum short-circuit currents in Bukóza Energo a.s. (12/2016).
- Calculation of the characteristic values of the short-circuit currents for the design of a GCB for generator TG₃ in substation R₂ in company Bukóza Energo a.s. (12/2016).

2017:

- Mechanical design of vertical main conductors (droppers) in Windpark Krammer 150kV, Netherland (02/2017).
- Analysis and exclusion of undesirable situations in the SSE-D distribution system in Harmanecká dolina (05/2017).
- Short-circuit current calculations in selected part of internal power system in Mariel, Cuba (06/2017).
- Short-circuit current calculations in selected part of distribution system in Veolia a.s., Žiar nad Hronom after uninstalling short-circuit reactors (07/2017).
- Methodological manual for short-circuit currents calculation (08/2017).
- Analysis of power system operation in heating plant Zvolenská Teplárenská, a.s. (08/2017).
- Earth-fault current calculation and review of generator protection against overvoltages in selected part of internal power system in Mariel, Cuba (11/2017).
- Analysis and proposal of optimal operation of internal power system in refinery Slovnaft a.s. (11/2017).
- Methodological manual for power electronics used in power systems (12/2017).

2018:

- Short-circuit currents calculation for purposes of IS Limiter design in substation R218 in Veolia Utilities, Žiar nad Hronom, a.s. (01/2018).
- Decentralized and renewable sources – principles and impact on distribution network (04/2018).
- Calculation of Short-circuit currents in electrical network in Bukóza Energo, a.s. (04/2018).
- Calculation of electromagnetic field induction and intensity of incoming feeder and calculation of earth fault currents in heating plant TEKŇO a.s. (07/2018).
- Short-circuit current calculation and proposal of IS Limiter in industrial power system of Veolia, a.s., Slovakia (08/2018).
- Analysis of short-circuit fault occurred in substation Spišská Nová Ves (110 kV) (09/2018).
- Proposal of new transformer T403 (400/121/34 kV) for power supply of industrial power system of Fortischem, a.s. (10/2018).

2019:

- Feasibility study of MDS Slovnaft connection to transmission system 400 kV SEPS a.s. (06/2019).
- Verification of short-circuit withstand capability of 0.4 kV switchgear in Faurecia Automotive Slovakia s.r.o. (06/2019).
- Analysis of power consumption and power quality in NUDTaRCH, n.o. Dolný Smokovec (07/2019).
- Verification of short-circuit withstand capability of 0.4 kV switchgear LIS NFPP+BI₂ in Faurecia Automotive Slovakia s.r.o. (08/2019).
- Analysis of harmonic contribution of new manufacturing line DN₄ in U.S. Steel a.s. Košice (11/2019).