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Editorial Board

Power Systems Computation Conference (PSCC) and Electric Power Systems Research
journal (EPSR)

Dear Editor,

I am pleased to submit the original paper entitled “Total AC Interferences Between a Power Line Subject to a Single-Phase Fault and a Nearby Pipeline with Multilayered Soil” to the Power Systems Computation Conference (PSCC) and Electric Power Systems Research journal (EPSR) journal. The manuscript (i) has not been previously published, (ii) is not currently being reviewed by any other journal, and (iii) will not be submitted elsewhere before a decision is made by this journal.

This paper presents an EMTP-based circuit model approach to study the total stress between a 138 kV double circuit overhead transmission line and a neighboring underground pipeline, under nominal and phase-to-ground conditions. The system is based on data from a real project in Brazil, with a complex geometry and with emphasis on the real local soil structure, which is composed of multilayers, with different conductivities, thickness and permittivities in each earth layer. Soil parameters are determined from actual field measurements, which results in a soil model composed of three layers. Generalized formulations which consider complex configurations of conductors on a N-layered soil are used to compute the conductor impedances, and to account properly for earth conduction effects in a multilayered earth structure. Then, a circuit model is built using the Alternative Transients Program (ATP) to predict the resulting total AC stress. Results show an excellent agreement between the proposed approach and the reference values, with a comprehensible evaluation of the risks to which the interfered pipeline is exposed. Moreover, further simulations are evaluated to mitigate the risks observed.

This study addresses two important gaps in the specialized literature, which are the application of EMTP-based modeling techniques to represent total AC interferences involving power lines and neighboring metallic facilities, as well as accurately accounting for multilayered soils in interference problems, which are the main contributions this work is expected to offer. Therefore, we believe that the proposed methodology can have a significant impact on industry practices related to electromagnetic interference analysis.

I will be the corresponding author for this manuscript, so please feel free to contact me at +55 61 982397666 or by email at caiomoraes@lapse.unb.br or caiomissiaggia96@gmail.com. Thank you very much for your time and consideration.

Sincerely yours,

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