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HIF detection, recognition, and modeling in 11KV distribution system feeder with non-linear load

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Power distribution feeders are subject to direct interaction with adjacent objects, such as tree branches, with such a contact creating a distribution feeder fault called a high impedance fault (HIF). HIFs are difficult to recognize and detect by traditional equipment since their occurrence results in a small increase in the load current, which can be confused with a normal load current increase. In this paper, the fast Fourier transform (FFT) technique is presented, simulated, and used for the detection and recognition of HIF in electric distribution power systems. An investigation of the HIF with a non-linear load model events are undertaken in a distribution network. The MATLAB/Simulink and Sim Power System tool-box are used in the analysis.

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