

by the existing GFR. Meanwhile, the electrical method utilizes current and voltage measurement values. Then, the waveforms of voltage and current are analyzed using a specific algorithm. These algorithms include sensitive earth fault method, artificial neural networks, fuzzy logic, and genetic algorithm. However, in order to achieve high success in detecting HIF, high costs are required for the investment of the original detection equipment and the installation of mechanical detection equipment at each feeder. Therefore, recently, the standard recommendation on HIF detection methods is still not available [14] - [19].

IV. CONCLUSION

The study of AAAC-S burn-down without protection relay operation has been performed. The results show that the AAAC-S burn-down consists of many sequences of events, started by the insulation material breakdown, which creates pinhole, overvoltage with arcing which caused a phase to ground fault through the pinhole, and finally short-circuit energy that exceeds the critical energy of AAAC-S in a specific mechanical tensile. In these conditions, the protection relay unable to detect the fault due to the working time of protection relay is greater than the critical burn-down time of AAAC-S that affected by the ground fault location, cross section size of AAAC-S, and grounding resistance of the pole. The further research would be conducted to find a method for reducing the partial discharge on XLPE that will avoid the pinhole formation.

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