Contribution ID: **1155** Type: **Poster**

Research on Distribution Problem of Overvoltage Online Monitoring Device on Distribution Lines

Monday 24 June 2019 17:15 (15 minutes)

The safety of the power system is related to the magnitude of its overvoltage. Therefore, an overvoltage online monitoring device needs to be installed for monitoring. In order to obtain the lightning overvoltage information of distribution lines and realize effective monitoring of lightning parameters in the area, an overvoltage monitoring device needs to be installed on distribution lines. Considered the wide distribution of distribution lines and many branches, the overvoltage monitoring device cannot achieve full coverage monitoring on distribution lines. Therefore, it is necessary to select lines suitable for installing an monitoring device.
Combined with the data collected by the lightning positioning system and the lightning trip rate of distribution lines, a method for selecting distribution points in distribution lines of monitoring devices is proposed. Calculate the influence of ground lightning density on p-value and m-value of lightning current amplitude of each line, and counts lightning strike failure rate q of each line.And calculate ω1, ω2, ω3 of the three influencing factors by analytic hierarchy process according to the key factors of the actual lines, and calculates the priority c of each line (c = ω1 * p + ω2 * m + ω3 * q), and lines the device installed on are determined by c. The p-value is calculated according to the flash density grid distribution map of the line region, and the total ground density value p of each line is calculated.The m-value is calculated according to the magnitude of lightning current of the line region, and the total magnitude of lightning current value m of each line is calculated. The q-value is to consider the historical lightning strike failure rate, and the lightning strike failure rate of each outlet is counted q. The final p,m, q is then the result of the normalization process.

Authors: Mr LI, Jiangtao; Ms HE, Shuang; FENG, Xin (Xi'an Jiaotong University); Mr LIU, Yuhao

Presenter: FENG, Xin (Xi'an Jiaotong University)

Session Classification: 5.2 & 5.3 Transmission Lines and Transformers and High Energy Density Storage

Track Classification: 5.4 Transmission Line & Transformers