

EVALUATION OF RELIABILITY RANGE INDICES FOR SINGLE SOLAR POWER BASED RADIAL DISTRIBUTION NETWORKS WITH DATA UNCERTAINTIES

Dharmasa¹, Radhakrishna C², Jain H S³, Srikant Surpam⁴, Srinivas Goud⁵ and Ravi Chander S⁶
¹Caledonian Engineering College, Oman, ²JNTU Hyderabad ³BHEL R and D, Hyderabad, ^{4,5} SNIST Hyderabad, ⁶WIPRO Technologies, India

ABSTRACT

This paper evaluates an Affine Arithmetic (AA) based load point and customer oriented Reliability Range Indices (RRIs) for Single Solar Radial Distribution Network (SSRDN) with Data Uncertainties (DUs). The work first formulates RRIs for the network under Fixed Weather Condition (FWC). Then AA based RRIs results are computed and compared with standard Interval Arithmetic (IA) tool. Here, in the proposed method a term Percentage Width Reduction (PWR) is defined to check the accuracy of AA over IA. The simulation and case studies are carried out on practical Radial Distribution Network (RDN): Four feeder electrical distribution network 33kV/11kV, Saipeta, Dist. Kurnool, AP, India.