

***ANALYSIS OF RELIABILITY INDEX OF 20 KV ELECTRIC
POWER DISTRIBUTION SYSTEM SERVICE IN BANDUNG
EXTENSION IN SEI ALAM DEPARTMENT
PT.PLN (Persero) ULP BENGKALIS***

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ABSTRACT

The reliability of the electricity distribution system is an important indicator in assessment the quality of service provided by electricity suppliers to their customers. This study analyzes the reliability of the 20 kV distribution system at PT PLN (Persero) ULP Bengkalis feeder in Bandung using the SAIFI index. Outage data from January to June 2025 were analyzed manually and using Microsoft Excel, then compared with the Bengkalis ULP standards, which set a performance limit of 1.92 outages/customer/year or 0.96 outages/customer/semester, as per SPLN 68-2:1986, which specifies a SAIFI value of 3.2 outages/customer/year. The calculation results showed a cumulative SAIFI value of 134.94 times/customer/semester, which was stated as not meeting the standard. The majority of outages were caused by animals (56.17%), followed by trees (34.04%), and component damage (9.79%). Improvements in protection, animal safety measures, and preventive maintenance are needed to reduce the frequency of outages.

Keywords: Distribution system, reliability, SAIFI Index, Bandung Substation.