

## ABSTRACT

Electricity technology with equipment in housing units can now be gathered more regularly thanks to the internet of things. The Advanced Metering Infrastructure (AMI) is a smart metering system integrated by a communication system equipped with a communication network and data management system that allows two-way communication between utilities and consumers and is expected to increase efficiency in monitoring kWhMeter activity detection.

However, the meter on this electricity is still separate and placed in different locations both in the apartment and at home, and the plan of this thesis proposes the design, development, and testing of an integrated system and measures in terms of techno-economics and, of course, in terms of regulation is also discussed and tests its feasibility whether it is feasible or not to be a business, as a result the state electricity company still empowers its workers to monitor each other.

A techno-economic analysis will be conducted in this study on the planning of LoRaWAN technology-based internet of things networks in the Bandung area. The capacity and coverage analysis, as well as radio network planning simulation utilizing software forks a Toll, are used in the network planning approach. According to the findings, at least 22 gateways with a Spreading Factor (SF) of 11, a Code Rate (CR) of 5/6/7/8, and a receiver sensitivity level more than -134.53 dBm are required to roll out Smart Metering services in the Bandung metropolitan area. Based on simulated coverage projection, the average received signal is -62.95 dBm, with an average throughput distribution of 5.42 kbps. Meanwhile, the greatest simulated Signal to Noise Ratio (SNR) was 22.4 dB, and the lowest SNR of -20 dB, resulting in an average SNR level of around -1.05 dB over the area.

**Keywords:** Internet of Things, Advanced Metering Infrastructure, TEA, Connectivity, Signal, Throughput.