

From a practical point of view, no power system is free of losses. Power system losses, especially in distribution systems are usually high and result in increasing the cost of operations to the electric utilities and the price tag of electricity to the consumers. Aggregate Technical, Commercial and Collection (ATC&C) losses is a reliable parameter that reveals the true energy and revenue loss conditions of distribution systems. In this paper, mathematical models were developed for the determination of billing efficiency, collection efficiency, and ATC&C losses using Life Camp Area Office's network of Abuja Electricity Distribution Company Plc Nigeria, as a case study. The average billing efficiency, collection efficiency and ATC&C losses for the period under review were found to be 89.73%, 84.80%, and 23.79% respectively. An understanding of appraisal of these losses is important to the power system Engineers, energy policy makers, and the power firms as it enables areas of high losses in the network to be identified, which will give room for credible investment plans and subsequent monitoring of the losses.

**KEYWORDS:** ATC&C losses, billing, energy, distribution system, revenue