

**COST ANALYSIS OF POWER SUPPLY QUEUING  
MODEL M/M/ $\infty$**

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**Abstract:** This paper deals with the power supply queuing model M/M/ $\infty$ . In this paper, we analyze total cost of power supply queuing model with infinite servers. We develop a total cost function and subject it to optimization, which consequently gives us non-linear equations. These non-linear equations are further solved by using Newton-Raphson method with the help of R-software. We also present analysis of sensitivity, tables and graphs of the model to exhibit the comprehensive interpretation of the same.

**Keywords and Phrases:** Power supply queuing model, cost function, sensitivity analysis, NLE, R-software.

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## **1. Introduction**

The model supplies power to customers and number of arriving customers are assumed to follow Poisson distribution with parameter  $\lambda$ . Further, it is also assumed that supply-schedule also follows Poisson distribution with parameter  $\mu$ . This model deals with a queueing system with infinite servers having infinite source of customers. Aziziankohan et al. [1] described how to handle congestion and reduction of energy consumption and emissions from supply chain transportation fleet from green supply chain management by applying queuing theory and its methods. Chen et al. [2] gave mobility optimization for mobile charging points in Internet of