ABSTRACTS

The aim of this project was to reduce stock and its extra cushion of safety by determining an optimal service level policy according to cost of lost sales and holding cost, and to recommend a suitable model for a replenishment inventory.

The study started with collecting data of historical demand and inventory data and applying the ABC inventory classification to identify and focus on the high impact items. Class A was selected for application of two different probabilistic models (Fixed Order Quantity Model and Periodic Review Model) with known stock-out cost, varying demand, and constant lead time.

The results show that the Fixed Order Quantity model can provide the best outputs when compared to the Periodic Review model and As-is in terms of the lowest total inventory cost and the lowest number of days of inventory, while the Periodic Review model is second in performance.

After applying the Fixed Order Quantity model, the total inventory cost will be reduced by 0.57 Million Baht (or 58%) of the actual cost during one year of evaluation. The average inventory will be reduced by 16.19 million baht (or 69%) of actual inventory value, and the number of days of inventory will be decreased from 54 Days to 17 Days. Furthermore, an optimal service level can be achieved based on stock-out cost and inventory cost.

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April 2010