Public Abstract First Name:Matthew Middle Name:Silvino Last Name:Roman Adviser's First Name:Wooseung Adviser's Last Name:Jang Co-Adviser's First Name: Co-Adviser's Last Name: Graduation Term:FS 2008 Department:Industrial Engineering Degree:MS Title:DISAGGREGATE FORECASTING MODELS: APPLICATION TO AMEREN UES TRANSFORMER USAGE

The importance of accurate forecasts to proper inventory management is a well known and abundantly addressed issue in industry. Maintaining appropriate inventory levels is essential when attempting to maximize potential revenue and customer satisfaction. Within the utilities industry the significance of customer satisfaction is of utmost importance and the ability to predict when and where certain materials will be needed is highly valued. This research was motivated by these requirements and was focused on creating a customized forecasting model which could address the specific needs and demand patterns experienced by Ameren.

Amongst the various materials used during energy delivery, transformers were selected due to their importance and increased lead times from suppliers. The historical transformer usage was attributed to three primary causes: new construction, storm and emergency, and general maintenance. Each of these displayed a distinctive demand pattern, thus a specific forecast was made for each segment. Creating an individual forecasting model for each type of demand provided the ability to address the uniqueness within each demand pattern. This model showed up to a 20% improvement of accuracy over more traditional methods and was created within Excel so as to allow Ameren to better predict transformer usage well into the future.