

**POWER DEMAND MEDIUM TERM FORECASTING FOR VITARICH CORPORATION
USING DATA MINING ALGORITHM**

A Project Study Report

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ABSTRACT

Forecasting provides a well founded decision in making future developments, in maintaining a stable system, and in avoiding technical risks. This study focuses on data mining the historical records of Vitarich Corporation, a feed milling company, accumulated starting April 2013 until September 2019. Applying Multiple Linear Regression, this aims to project power demand in the next five years which will be the basis in understanding the power system. Using Minitab Statistical Software, data were processed and analyzed, then the results were accumulated and compared to the data analysis gathered from another built-in application namely IBM Statistical Package for the Social Sciences (SPSS) in order to verify and secure its output forecast supervised by a professional statistician. It was determined during the first trial that only production was significant having the p-value equal to 0.0 while temperature, pressure, and humidity having p-values 0.505, 0.092, 0.864 respectively were out of range within the standard limit (0.0 – 0.05). Afterwhich, two succeeding reevaluations were done until it was observed that the residual result has a balanced standard deviation within the range (+4 to -4). Linear equation best fitted the model and gave the energy equation equal to $61822 + 1.1742 (\text{PRODUCTION})$. The energy values were converted to its equivalent power values which is more vital in understanding capacity limit and power demand of Vitarich Corporation. Finally, it was determined that the system is still capable to withstand the requirement on the next five years having a forecasted power demand equal to 354.98 kW (443.72 kVA).