

Title : A Hybrid Model SARIMA-SVR for Forecasting Monthly Electricity Consumption for Residential Houses:
A Case Study in Muang Chiang Mai District, Chiang Mai Province.

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ABSTRACT

This research aims to develop and select the most appropriate forecasting model for predicting monthly residential house electricity consumption in Mueang Chiang Mai District, Chiang Mai Province, from January 2014 to June 2024, totaling 126 months. The data is divided into two parts: the first part is the training data, from January 2014 to June 2023, comprising 114 months, used for model development; and the second part is the testing data, from July 2023 to June 2024, comprising 12 months, used to select the most suitable forecasting model. The selection is based on a comparison using the Mean Absolute Percentage Error (MAPE). The research results show that the Seasonal Autoregressive Integrated Moving Average (SARIMA) - Support Vector Regression (SVR) hybrid SARIMA-SVR model is the most suitable for forecasting monthly residential houses electricity consumption in Mueang Chiang Mai District, Chiang Mai Province, with the lowest MAPE training set of 0.607% and MAPE of the test set of 1.719%, R-Squared of 98.183%, and RER of 85.501%.