ABSTRACT

PT. Pertamina is oil and gas company owned by the Government of Indonesia, that has responsibility for marketing and distributing of fuel throughout Indonesia. Marketing and distribution of fuel is closely related to how much the needs of each region, where demand is likely not constant, so it is necessary to forecast fuel requirements. Forecasting of fuel demand is the beginning of all the planning of supply chain activities. Forecasting of Premium fuel on in the Depot Ampenan showed that the combined method present better forecast than a single method. Combination of ARIMA and Neural Network work well to produce better forecasting. RMSE value of Hybrid ARIMA-NN is smaller than single method, that ARIMA and NN models. The results of the Terasvirta test showed that there is a non-linear correlation, so non-linear models can be applied for this case. Optimal inventory model occurs when the quantity of order (Q) reaches the value of 2518 Kl, backorder (B) of 1667 Kl and safety stock is 87 Kl. From these results, it can calculate the total cost required for the procurement of inventory for 1 month amounting to Rp 96,135,699.392,-.

Keywords : ARIMA, Neural Network, Hybrid ARIMA-NN, Inventory Optimization