Peramalan tingkat konsumsi gas pipa domestik di indonesia menggunakan metode neural network, arimax, dan multiple linear regression = Forecasting pipeline gas consumption rate in indonesia using neural network arimax and multiple linear regression method / Fitri Yulianti

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Abstrak

ABSTRAK
Penelitian ini bertujuan untuk memprediksi tingkat konsumsi gas pipa domestik di Indonesia menggunakan metode Neural Network, ARIMAX, dan Multiple Linear Regression (MLR). Peramalan dilakukan hingga periode Desember 2025 dengan menggunakan data historis tingkat konsumsi gas pipa domestik, inflasi, selisih harga minyak dan gas, serta selisih harga batubara dan gas periode Januari 2007 sampai dengan September 2012 sebagai prediktor. Hasilnya metode ARIMAX memberikan hasil yang paling akurat dengan nilai MAPE 3.89%. Metode Neural Network memberikan hasil forecasting dengan nilai MAPE 6.34%, sedangkan metode MLR mempunyai tingkat error terbesar dengan MAPE 8.39%. Kapasitas produksi gas Indonesia cukup besar, tetapi jumlah gas yang dikonsumsi untuk keperluan domestik masih tergolong sedikit. Hasil forecasting ketiga metode menunjukkan ke depannya tingkat konsumsi gas akan terus meningkat. Perbandingan antara hasil forecasting ketiga metode dan Neraca Gas Indonesia cukup besar. Hal ini menunjukkan meskipun Indonesia memiliki potensi cadangan gas alam yang sangat melimpah, tetapi permintaan domestik belum terpenuhi secara maksimal.
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ABSTRACT
This study aims to predict the level of domestic pipeline gas consumption in Indonesia using Neural Network, ARIMAX, and Multiple Linear Regression (MLR). Forecasting is done until the period of December 2025 using historical data of domestic pipeline consumption rate, inflation, the difference price of oil and gas, as well as the difference price of coal and gas from the period January 2007 until September 2012 as predictor. The result ARIMAX method gives the most accurate results with the value of MAPE 3.89%. Neural Network method gives forecasting result with MAPE 6.34%, while the MLR method has the largest error rate with MAPE 8.39%. Indonesia gas production capacity is quite large, but the amount of gas consumed for domestic use is still relatively small. The third method of forecasting results indicate the future gas consumption will continue to increase. Comparison between the results of the three forecasting methods and Neraca Gas Indonesia is quite large. This shows even though Indonesia has very

abundant potential reserves of natural gas, but domestic demand has not been met maximally.