When testing a model for a reliable energy consumption analysis system for energy-efficient appliances, it is common to use multiple evaluation metrics to assess its performance from different perspectives. Here are some commonly used evaluation metrics for regression tasks that you can consider:

1. Mean Squared Error (MSE): MSE measures the average squared difference between the predicted energy consumption values and the actual energy consumption values. It provides an overall measure of the model's prediction accuracy, with higher values indicating larger errors.
2. Root Mean Squared Error (RMSE): RMSE is the square root of the MSE. It gives the average magnitude of the prediction errors in the same unit as the target variable. RMSE is widely used as it is more interpretable than MSE.
3. Mean Absolute Error (MAE): MAE calculates the average absolute difference between the predicted and actual energy consumption values. MAE provides a measure of the average magnitude of errors without considering their direction.
4. Coefficient of Determination (R-squared): R-squared represents the proportion of the variance in the target variable (energy consumption) that is explained by the model. It ranges from 0 to 1, where a higher value indicates a better fit. R-squared can give an indication of how well the model captures the variability in the energy consumption data.
5. Mean Percentage Error (MPE): MPE calculates the average percentage difference between the predicted and actual energy consumption values. It provides insights into the average percentage deviation of predictions from the actual values.
6. Mean Absolute Percentage Error (MAPE): MAPE is similar to MPE but calculates the average absolute percentage difference. It provides a measure of the average percentage deviation of predictions from the actual values, regardless of the direction.
7. Scatter Plot: Visualize the predicted energy consumption values against the actual energy consumption values in a scatter plot. This can give a visual representation of how closely the predictions align with the actual values and indicate any systematic biases or trends in the predictions.