Executive Summary:

Problem:

PowerCo is facing customer churn, potentially due to price sensitivity. To address this issue, they are considering offering a 20% discount to customers at high risk of leaving.

Machine Learning Modeling:

After performing data cleaning, exploratory data analysis, and feature engineering, a Random Forest Classifier was employed to predict customer churn likelihood. The model achieved a test set accuracy of 0.90 and a precision score of 0.91.

Insights:

1. Churn rate: The overall churn rate is approximately 9.7% within the given dataset.

2. Net margin: The net margin on power subscription and consumption over the last 12 months plays a significant role in churn prediction. Lower net margins increase the likelihood of churn.

3. Forecasted bill for meter rental: The projected bill for meter rental over the next two months is also a crucial factor in churn prediction. Higher forecasted bills contribute to an increased risk of churn.

4. Time-related factors: Various time-related variables such as the number of months of activity, tenure with PowerCo, and frequency of contract updates significantly influence churn likelihood. Customers with shorter activity periods, shorter tenures, or frequent contract updates are more likely to churn.

Recommendations:

Based on the findings, it is recommended that PowerCo consider implementing the proposed discount strategy for customers identified as high-risk churn candidates. The model's accuracy and precision scores indicate its potential effectiveness in identifying customers who are likely to leave. By targeting these customers with a discount offer, PowerCo aims to increase customer retention and mitigate churn. Monitoring and adjusting the discount strategy based on ongoing performance evaluation would be crucial to maximize the impact while minimizing potential revenue loss.

Further analysis and monitoring of customer behavior, competitor offerings, and additional factors influencing churn would provide valuable insights for ongoing improvement in churn management strategies.