Inequalities in Natural Gas Demand Forecasting
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What is GasDay?
• GasDay research lab licenses natural gas demand forecasting software to Local Distribution Companies (LDC’s).
• GasDay software founded by Dr. Brown, and developed with over 200 students since 1993.

Why is this Important?
• Customer has asked about this inequality
• Potential to improve the GasDay and GasHour forecasts

Problem Statement
• GasDay has multiple time horizons of forecasting: Hours, Days, Months, Years
• GasHour forecasts gas demand for each of the next 106 hours
• GasDay forecasts gas demand for each of the next 8 days

GasHour as an Input to GasDay
• What if the \( \sum_{h=1}^{24} GH_h \) is a good forecast?
• How to adjust the GD forecast

Model 1
• GD forecast created by Ensemble of 2 forecasts
• If GH forecast is good, and GD forecast is bad, we do not want to adjust toward a bad forecast
• Use \( \sum_{h=1}^{24} GH_h \) as an input to GD forecast
• Uses GH when its accurate
• Ignores GH when its inaccurate

Model 2
• GD forecast created by Ensemble of 2 forecasts
• If GH forecast is good, and GD forecast is bad, we do not want to adjust toward a bad forecast
• Uses GH when its accurate
• Ignores GH when its inaccurate

Future Work
• Implement piecewise linear solution into GasDay software
• Observe how adjustments affect accuracy of both forecasts over extended periods

Results
• Take the difference of the GD and \( \sum GH \) forecast, and disperse that error to the hourly forecasts.
• What is the best way to disperse the error?

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References