

Statistical Analysis Plan for Short-term Gas Demand Forecasting

Population

National gas demand data for Scotland

Primary Objective

Forecast gas demand into the future days.

Secondary Objectives

Estimate prediction intervals of gas demand forecasts.

Assess what factors affect the width of prediction intervals.

Data Collection

Data from National Gas between 2021 and 2024 in Scotland

Variables under Consideration

The physical actual gas demand for Scotland and for the given day (in mscm)

The actual Composite Weather Variable for Scotland and for the given day, which is a measure of temperatures and wind speeds (in Deg C)

Date data, including day of the week, public holidays and special events

Missing Data Procedures

None mentioned, though missing values might be an issue in time series analysis.

Summaries to be Presented

Line plots of gas demand and composite weather variable

Models to be Fitted

Time Series Analysis

Generalised Additive Models for Location, Scale, and Shape

Quantile Regression