

Analytics Methodology

1. Data Collection
2. Data Transformation/Exploration
 - Normality analysis
 - Time trend exploration
3. Model building – Econometric Model
 - ARIMA
 - SARIMAX
4. Model building – Machine Learning Model
 - Regression
 - Random Forest

Data Collection

- Natural Gas Consumption and Prices
 - Source <https://www.eia.gov/>
 - Method: API
 - Range: daily value for 15 years from 01/01/2001 – 01/07/2019
- S&P Information:
 - Source: <https://finance.yahoo.com>
 - Method: API call using module fix_yahoo_finance
 - Range: daily value for 15 years from 01/01/2001 – 01/07/2019.
 - Data include: Ticker, Date, Close, and Volume.
- Economics Stats:
 - Source: Federal Reserve Economic Data <https://fred.stlouisfed.org/>
 - Method: direct download.
 - Range: quarterly value for 20 years from 01/03/2004 – 01/07/2019.
 - Data include: CPI, GDP, GDP_Change, and Household income

Data Exploration