Short Term Gas Demand Forecasting

Case study by N.Macedonia
Energy Regulatory Commission

Regulator Role in Gas Forecasting

- The ERC is making gas forecasting when setting up the TSO and DSO tariffs

- The ERC is making the final decision on forecasted gas demand, with inputs from TSO, DSO and consumers

- The TSO/DSO are providing their forecasts in the tariff request

Purpose and Objectives of the Gas Demand Forecasting

- The main goal of the gas demand forecasting is for setting up the tariff, occasionally for other purposes like energy plans and strategies

- The gas forecasting from the ERC is mainly done on a yearly basis, sometimes on a monthly basis

- The forecasted gas consumption is used for setting up tariffs for TSO and DSO

Segmented Gas Demand Forecasting

- The segmentation is usually on a TSO and DSO level

- Special focus is on the power plant as it is the dominant gas consumer

Inputs When Forecasting the Gas Demand

Main inputs for the yearly gas consumption forecast are:

- Historical data
- TSO and DSO forecast
- Key players survey, traders, power plants

Soft parameter might be the price

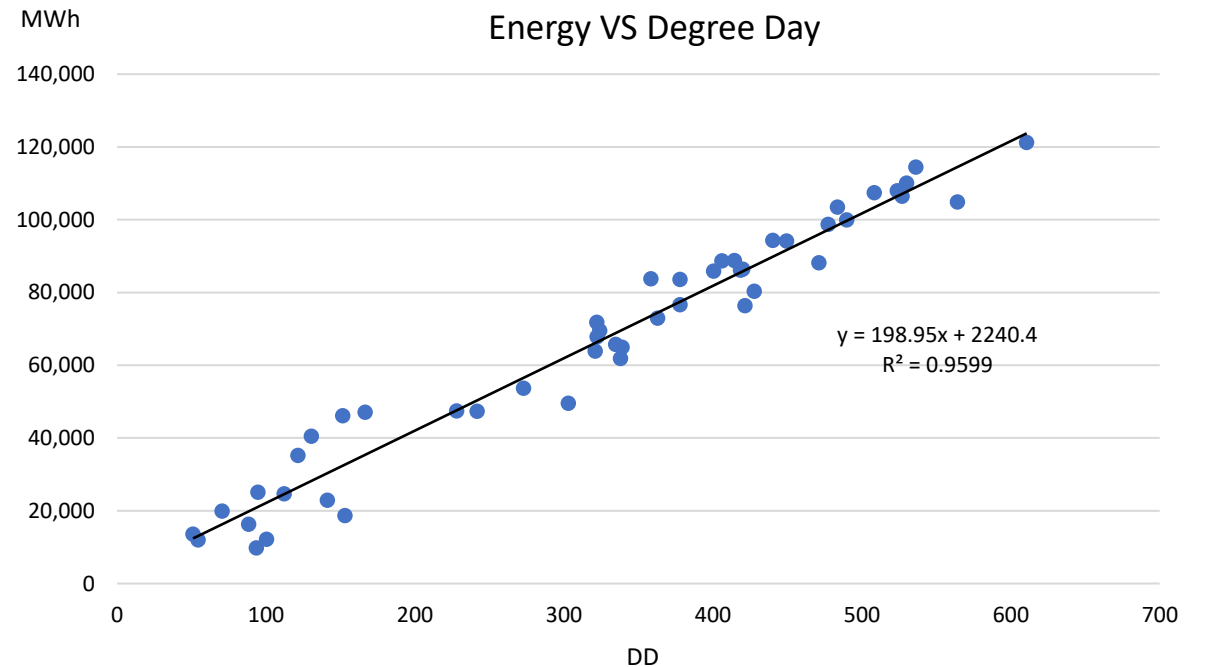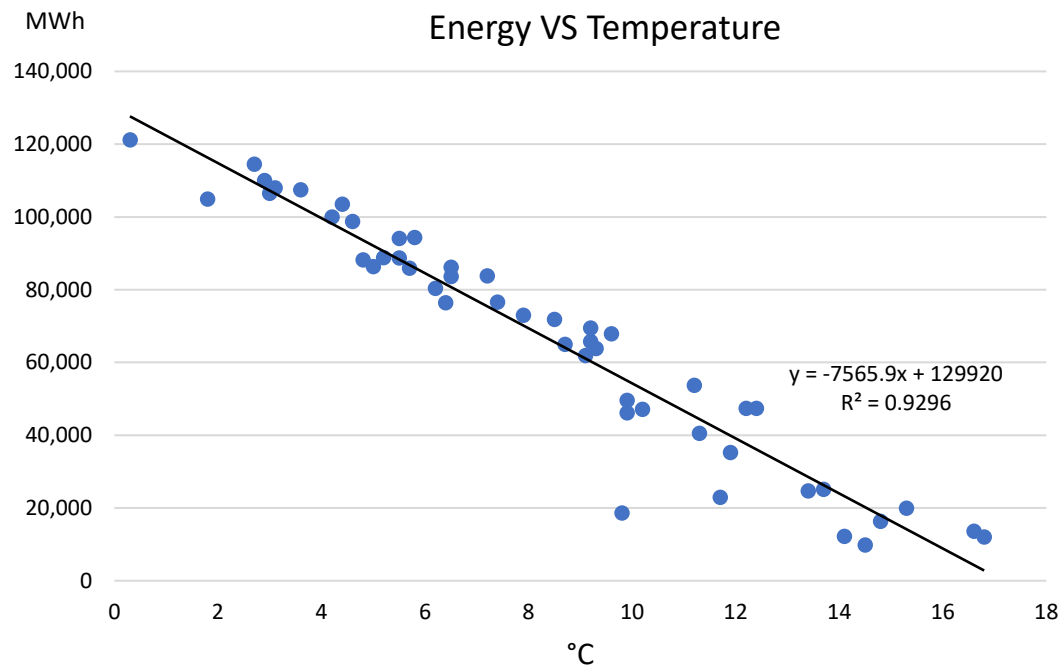# Mathematical Models for Forecasting

There are no official mathematical modes by the ERC for gas demand forecasting

Some examples would be a linear regression

Linear Regression for the District Heating System

Charts based on a five years historical data with monthly data points

MWh
Energy VS Temperature

140,000

120,000

100,000

80,000

60,000 $y = -7565.9x + 129920$
                              $R^2 = 0.9296$

40,000

20,000

0

0   2   4   6   8   10   12   14   16   18

°C

MWh
Energy VS Degree Day

140,000

120,000

100,000

80,000

60,000 $y = 198.95x + 2240.4$
                             $R^2 = 0.9599$

40,000

20,000

0

0   100   200   300   400   500   600   700

DD

Challenges and Best Practices in Gas Demand Forecasting

Challenges

- Small system that is heavily impacted by one consumer, the power plant
- How do TSO, DSOs, and other stakeholders address these challenges?

Best Practices

- Best practice would be a balanced approach between the data provided by the TSO and consumers, taking into account historical data and forecasted prices

THANK YOU
FOR YOUR ATTENTION!

dalibor.mitrovski@erc.org.mk