Outlier
detection and load
prediction on a net for gas
distribution

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Abstract

This work was done to develope the forecasting algoritm at Sydgas for the load in their gasdistribution net. Sydgas uses a forcasting method based on curvs showing a dependence between temperature and load for each type of day. For exampel daytype one is a monday, daytype two is a tuesday and so on until daytype seven which is a sunday. Public holidays are considered as sundays and the days before them as saturdays. By compiling temperature data and load data for a number of days of the same type and plotting load as a function of temperature the relation between temperature and load has been determined. These curves are updated on an annual basis. In that way one can today specify the current daytype and temperature to get a prediction of the load.

To develop the forcasting program mathematical models instead of type curves have been used. The models are build with help of knowledge of previous load data and knowledge of extern signals that effect the load such as wind and temperature. Prediction on both hour and 24 hour basis was done using the achieved models.

A large part of the difficulty was detecing and removing outliers from the dataset. To find and replace outliers an iterative procedure based on a Least Square method was used.

The calculations have been made in a MATLAB environment.